

ORBIT

VOLUME 27, NUMBER 1 1996

Ontario's Magazine for Schools
Published by OISE



Creating Integrated Curriculum

VOICES IN THE NEW STORY OF EDUCATION

EDITORIAL OFFICES:

ORBIT
252 Bloor Street West
Toronto, Ontario, M5S 1V6

EDITOR: Heather Berkeley

ASSISTANT EDITOR: Donna Hutchins

EDITORIAL BOARD: Paula Bourne, Amy Casey, Ardra Cole, George Dei, Lynne Hannay, Angela Hildyard, Dave Hunt, Clare Kosnik, Howard Russell, Val Ross and Ruth Scott

GRAPHIC DESIGN: Helmut W. Weyerstrahs

TYPESETTING: Arnheim Typesetting & Design



Printed and bound in Canada
by Thistle Printing
on recycled paper

SUBSCRIPTION RATES:

\$38.52 per subscription year (4 issues). Incl. 7% GST

To order: Mail cheque or money order to

ORBIT
P.O. Box 10, Station F
Toronto, Ontario, M4Y 2L4

Phone: (416) 447-8186

Fax: (416) 447-2713

Second Class Mail Registration Number 4511

ISSN 0030-4433 01

Canadian Publications Mail Product Agreement
No. 638528

Creating Integrated Curriculum

GUEST EDITOR: *Susan M. Drake*

- 1 Towards a New Story in Education** – *Susan M. Drake*
- 4 The Turbulent Waters of Change:** Journey Through Integrated Curriculum – *Gary E. Babiuk*
- 7 A Meaningful Classroom Experience:** Negotiating Curriculum with Young Adolescents – *Anne Reid*
- 10 Opportunities for Students:** Integration Through the Eyes of a Mathematician – *Marg Warren*
- 12 Preparing Students for the Next Millennium:** One School's Journey in Integrated Planning – *Fran Craig*
- 14 A Practical Process for Teachers:** Creating Outcomes-Based Integrated Units – *Phil Main*
- 18 Muskoka's Initiative in Integrated Programming:** Examples of Creative Programs – *Ken Thurston*
- 20 Teachers Working Together:** Grade 9 Teachers' Support Group – *Lauren MacDonald*
- 21 The Norfolk Model:** Integration of Outcomes Through Life Learning – *Peter Rasokas and Karen Anderson*
- 24 Practical Help for Integrating the Curriculum:** Key Readings in Brief – *Bev Haskins*
- 26 Holistic Education:** Young Children Making Connections – *Marni Binder*
- 28 Story of an Itinerant French Teacher:** Combining Old and New Methods – *Tracey Dorey*
- 31 Transformation of a Grade 2 Classroom:** Creating a Fairy Tale Kingdom – *Mira Coghlan*
- 32 Applying a Global Perspective:** Spaceship Earth – *Anne Armstrong*
- 33 Old Crow or Bust:** An Exterior and Interior Journey – *Penelope D. Numbers*
- 36 The Arts Quest:** Integrating Drama, Music, and Visual Arts – *Joan E. Sturch*
- 38 Integration in Preservice** – *A Conversation with David Booth, Elgin Wolfe, Don Fraser, and Ron Shephard*
- 40 Integrated Family Studies:** Implementing a New Curriculum – *Joyce McKeag*
- 41 Global Education:** A Model for Destreamed Grade 9 Classes – *Sandra Tondat*
- 43 Embracing Integrated Learning** – *A Conversation with Susan Drake, Kaye Egan, and Barry Finlay*
- 47 Enhancing the Richness of Mathematics:** Creating Links with Other Disciplines – *Christine Suurtamm*
- 48 Integrating Arts in the Secondary School:** Teaching Beyond Subject Content – *Lee Willingham*
- 49 Linking Technology and Learning Outcomes:** Integrated Curriculum Models from TVO – *Ron Wideman*

NOTES FROM THE DIRECTOR

Orbit theme issues have explored different aspects of a new paradigm for Ontario education. We have looked at holistic, anti-racist, and global education, outcomes-based learning and authentic assessment models, as well as site-based management and school restructuring processes. All these issues have focussed on collaborative, constructivist teaching/learning models and they have included the voices of classroom teachers with other stakeholders in the Ontario school system. Yet this issue on integrated curriculum — a term that refers to organizing teaching/learning by topics or themes as opposed to the traditional academic disciplines — is the most classroom-based *Orbit* issue yet; virtually all the contributors are Ontario classroom teachers who with students and colleagues have created original curriculum units that link student interests with the learning outcomes stipulated by provincial guidelines.

The interest in integrated curriculum is perhaps greatest for educators working to implement the Common Curriculum with students from Grades 1 to 9. However, as the articles in this issue show, particularly the dialogue with secondary school principals Kaye Egan and Barry Finlay, integrated approaches may be the answer to creating relevant, exciting curriculum for senior secondary levels as well.

A special thanks to Guest Editor Susan Drake, an OISE graduate who is well known in Canada and the States for her work in this area. She made possible, through her time, knowledge, and contacts, this original *Orbit* theme issue.

Angela Hildyard
Director

Towards a New Story in Education

SUSAN M. DRAKE, Guest Editor

Associate Professor, Faculty of Education,
Brock University

We are living in times when the assumptions that we live by are being challenged in every area, including government, economy, health care, and social issues. It is little wonder

same time, there is a cry for increased accountability of school systems. Associated with accountability is a call for back to the basics, rote learning, and a return to the traditional ways of schooling.

Teachers, parents, and the general public are confused. What is happening in our schools? Is integrated curriculum in direct opposition to increased accountability? Or is there some way in which we can increase accountability and teach in an integrated fashion? And why this trend towards integration?

“Teachers, parents, and the general public are confused. What is happening in our schools? Is integrated curriculum in direct opposition to increased accountability? Or is there some way in which we can increase accountability and teach in an integrated fashion?”

— Susan Drake



that education finds itself embroiled in controversy, flux, and transformation. Critics claim that educators are not preparing students to be productive citizens of the 21st century. In response, teachers have been mandated to adopt an integrated, outcomes-based approach from Grades 1 to 9. This approach is usually grounded in a constructivist, student-centred philosophy. At the

Understanding Change

I believe that these questions can begin to be tackled by applying the “Story Model” (Drake et al., 1992). This model is an integrated curriculum model that examines any content area and situates it in the context of change. It assumes that humans make meaning from story and that there are different types of stories that filter our ways of knowing. When there is significant change there will be a “new story,” one in which there are different values and people behave differently than they did in the “old story.” The changes we are undergoing in education today promise to be significant; schools may never be the same again. Yet creating this new story is a not a linear process. No one knows quite what it will look like, and we are creating it as we go along — creating it by experimenting, reflecting, and responding to the very real changes happening in the world in which we live.

Looking through the frame of the Story Model, we can begin to understand our perspectives by examining our present personal, cultural, and global sto-

“Surprisingly, no country seems satisfied with their system as it is, whether it is a traditional one or not. This in part has been brought about by the information explosion.”

ries. Our personal stories involve our individual experiences. In Ontario, the Common Curriculum, board objectives, and individual situations colour our stories. The cultural story takes on a larger context. Ontario is in the midst of educa-

village; we live today in a world that is interconnected and interdependent.

The Old Story

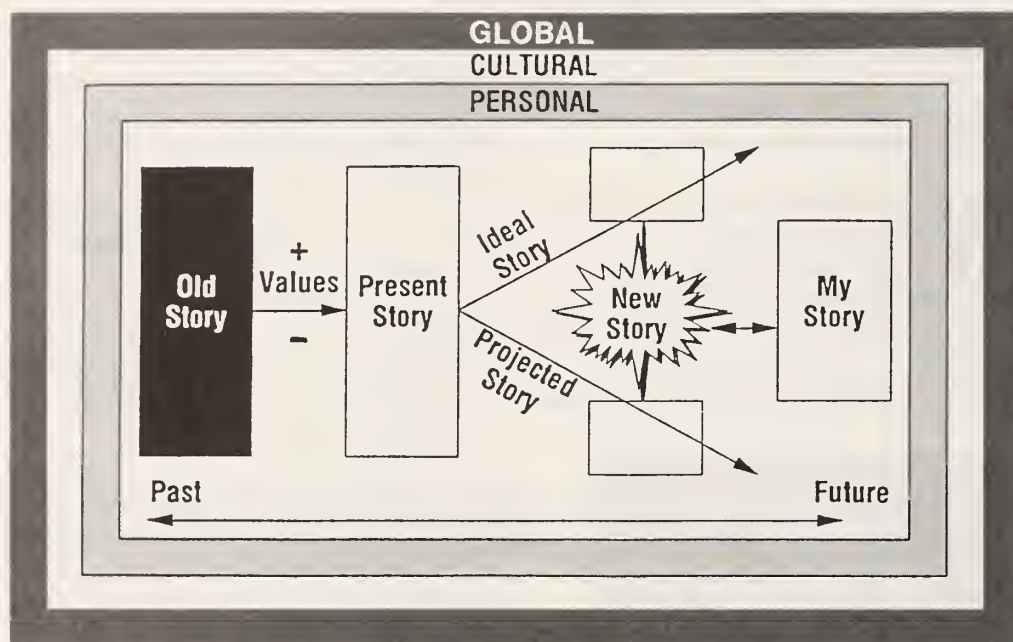
How did we come to this crisis? A look at the old story offers some clues. The purpose of schooling was socialization — to reproduce the status quo. The traditional school was patterned after the factory model. Students went to school and — as though they were on a conveyor belt — were given the same experiences. The teacher was the expert and the student the passive learner. Course offerings were discipline based. Fundamental to this concept of schooling was the belief that knowledge is linear, sequential, rational, and objective. Based on the scientific method, there was one right answer that could be ascertained through controlled experiments. Since there was a right answer, knowledge could be quantified and measured by pencil and paper tests; scores could be situated on the Bell curve. Standardization was not only possible but desirable, as it led to accountability: teachers, students, boards, provinces, and nations could be compared favourably or unfavourably.

To understand the old story, it is important to recognize the values underlying these behaviours, for it is values that drive actions and if changes are to occur, values will have to change. Some of the old story's values are

- objectivity
- linear, procedural thinking
- prediction/control
- status quo
- hierarchy/power
- competition

The Emerging New Story

There appears to be a new story emerging in classrooms across North America. What's worth knowing is expanding from a knowledge base to include the cross-disciplinary skills needed to be a



The Story Model is an integrated curriculum model that examines any content area and situates it in the context of change.

tional reform similar to that occurring across North America. The press presents education as in crisis. Due to lack of technological skills, there is the threat of not being competitive in the 21st century. All students need high-level skills, not just the elite who go on to further education. All the major professions are changing, and education must also change. And finally, schools are expected to be all things to all students, and there are impossible demands to fulfil.

The global story continues in the same vein. Surprisingly, no country seems satisfied with their system as it is, whether it is a traditional one or not. This in part has been brought about by the information explosion. Students can no longer learn enough from one teacher and a textbook. The information highway has brought us together as a global

“In education, these polarities might involve issues such as whole language and phonics, quantitative and qualitative reporting, or holistic learning and back to the basics.”

productive citizen for the 21st century. The teacher is the facilitator, and the student constructs knowledge through experience. Students learn at different rates and in different ways. Knowledge is uncertain, indeterminate, and subjective. There are many answers, many realities. These basic concepts lead to alternate ways of teaching and learning. In efforts to make learning more relevant, curriculum is set in its real-life context and thus tends to be more integrated. Both intuitive and logical thinking are stressed. Since students learn through social construction of knowledge, collaborative learning becomes important. Assessment cannot be done by marks alone. Shifts to ongoing feedback and performance assessment point to new understandings of teaching and learning.

This emerging new story has new values embedded in it. This paradigm values

- equitable outcomes
- a philosophy that all can learn and all can succeed
- intuitive and logical thinking
- thinking, interpersonal, and life skills
- collaboration
- respect for self, others, and the planet

How and when will the new story become reality? I believe it is happening now. Part of any new story is resolving the tension between polarities. In education, these polarities might involve issues such as whole language and phonics, quantitative and qualitative reporting, or holistic learning and back to the basics. However, as we explore these issues and listen to all the voices in the dialogue (collaboration is a value underlying this paradigm), it becomes apparent that these do not necessarily require either/or thinking. As we create the new story, we must remember not to “throw out the baby with the bath water.” There are many excellent practices from the traditional paradigm that we need to keep and perhaps rework to adapt to a changing world. Why can’t

we teach phonics within a whole language approach? Use both quantitative and qualitative reporting? Teach the basics within a holistic approach?

Accountability and Curriculum Integration

From this perspective, we need to re-examine accountability in an age when there are solid reasons to consider curriculum integration, such as:

- the exponential increase in knowledge (impossible to confine knowledge within subject area boundaries)
- avoidance of repetition
- the integrated nature of the real world
- the possibility of a more relevant curriculum
- brain research indicating that we learn by making connections

At the same time, we need accountability. However, accountability does not necessarily mean standardized tests and traditional, discipline-based mark-oriented report cards. We need to ask new questions. What is worth knowing? How can we tell when a student has learned it? The answers to these two questions affect the next two. Why can’t we teach the most significant concepts from the disciplines within a real-life integrated approach? Why can’t we assess integrated learning on both the knowledge and performance aspects without having to fragment learning into disciplines? Students, educators, and parents need to have baselines for success. These baselines are in the process of being redefined through current explorations into effective alternative assessment and reporting practices.

There are often complaints that those who are in positions of developing new policies don’t know what they are doing; however, I believe this opinion demonstrates a fundamental misunderstanding of how change is occurring. No one knows what the new story will look like yet. It is only being created *now*. So it is

one step forward and one step back as educators test new theory and practice. However, *guiding this process is a solid set of values and new understandings of teaching and learning*. Accountability is not achievable only through the values of the traditional model. With emerging new values, accountability will exist but will be “measured” differently.

Call to Action

I believe that it will be increasingly difficult to contend that the old story of school works best to educate students for a changing world. If we are to create the most effective new story, there are several factors we should consider:

- support teachers through the performance dip
- don’t throw out the old for the new
- reconcile or synthesize opposites
- reflect on values we wish to ground educational practices
- reflect on how people best learn
- reflect on how to teach given how people learn best
- listen to all the voices

The last step to the Story Model is “my story.” If the new story is to be a positive one, it must be a collaborative effort and it will involve personal commitment. Now is the time for each of us to reflect on what we truly believe is worth knowing and how to best teach students. The educators whose stories you will read about in this issue of *Orbit* have done exactly this. I invite you to join educators in schools and school systems across North America in creating the New Story.

REFERENCE

- Drake, S. M., Babbington, J., Laksman, S., Mackie, D., Maynes, N., & Wayne, L., (1992). *Developing an integrated curriculum using the story model*. Toronto: OISE Press.

Creating Integrated Curriculum

“In moving towards integrated curriculum, you must change student evaluation, reporting, timetabling, bells, building, and the organizational and hierarchical structures.”

—Gary Babiuk

The Turbulent Waters of Change

Journey Through Integrated Curriculum

GARY E. BABIUK

Principal, Jubilee Junior High School
Edson, Alberta, Doctoral Candidate, OISE

Once upon a time, in a school not so far away, a group of educators began a voyage into the uncharted waters of integrated curriculum. This retelling of their journey is dedicated to their courage, for this journey was fraught with obstacles and hidden shoals. I will use the journey metaphor outlined in Susan Drake's book, *Planning Integrated Curriculum: The Call to Adventure*, to frame the story (See Figure 1). This journey began at Jubilee Junior High School¹ in the town of Edson, Alberta² and it was from here the group was to launch its lifeboat from the foundering ship of education. The story you are about to read may sound fictional, but it is in fact true and continues at this moment.

I should preface this story by noting that in recent times public education in Alberta has not had as open an atmosphere towards change. An increased emphasis on yearly, province-wide achievement exams for all students in Grades 3, 6, and 9 in all core subjects has resulted in movement back to the belief in the importance of subject-based exams in the name of accountability, a belief endorsed by the Premier.

The Call to Adventure

It all started in the fall of 1990. As the newly appointed principal of Jubilee Junior High School, I basically just tried to survive that first year. I had been working in junior high schools (Grades 7 to 9) throughout Alberta for 16 years, but this was my first principalship. My first goal was to build a team in order to survive in the tumultuous waters of teaching adolescents. By the end of that year, two teachers — Val Wooders and Glen Thiel — had approached me and described their

vision of what a junior high school classroom should be like. (They were testing me to see how I would react, and instead of being shocked, they found me to be receptive and, in fact, enthusiastic.) As a result of our combined experiential knowledge, we all had come to the conclusion that the discipline-based, time-tabled, mechanistic, hierarchical, bureaucratic school system wasn't working. In fact we would have agreed with Smith (1995), who in his recent *Phi Delta Kappan* article declared that the ship known as education was going down. They had arrived at the same conclusion: "We must simply stop trying to patch up the vessel we find ourselves on. We need to lower the lifeboats and row for new and probably unfamiliar shores. We need to begin by changing the way we think" (Smith, p. 588). In other words, we must heed the call to adventure and begin a new voyage into integrated curriculum. (See Figure 1.)

Resistance

At first we played with our visions of this new school, brainstorming, sometimes half jokingly. At the same time, a group of secondary administrators in Yellowhead School Division were discussing quite seriously many of the concepts of restructuring. These dialogues were being encouraged and facilitated by John Martini, the Curriculum Director, who worked at our central office. He exposed us to the ideas of such authors as Barth, Eisner, Fullan and Hargreaves, Glickman, Jacobs, Leithwood, Lieberman, Sergiovanni, Sizer, Spady, and so on and challenged us to begin to "think otherwise." At this time in the school division, there was an openness to new ideas and change.

The next year another teacher, Sandy Axmann, was asked to join the team, and as the months went by we continued designing our lifeboat. However, there came a point where we had to make our

plans a reality. We had to construct our lifeboat and launch it. It was in the winter of 1992/93 that I approached the Admiral of the fleet (the superintendent) for advice and direction. The result was the development of a plan of action. We presented our ideas, which included our vision, rationale, goals, and objectives, to our School Board. We called the project SOAR (Striving to Obtain Academic Richness). Our symbol was an eagle soaring over the world with students, teachers, and community circling it, hand in hand. We presented our ideas in an interactive style by putting the members of the board and central office administrators through a sample lesson.

The presentation was a success, and

room, as a permanent planning area. Despite this planning time outside of regular class time, the bulk of the unit planning was done on weekends and during summer vacation.

The fact that we all had limited experience and knowledge about integrated curriculum was not as important as the fact that we were all committed to a new vision and willing to give our all in order to make it work. We had chosen "a path with heart" (Drake, p. 15). In fact, as Panaritis states, "Whether or not team members have prior experience or theoretical foundation in interdisciplinary education is, in the long run, far less important than whether or not they are convinced (morally and pedagogically)

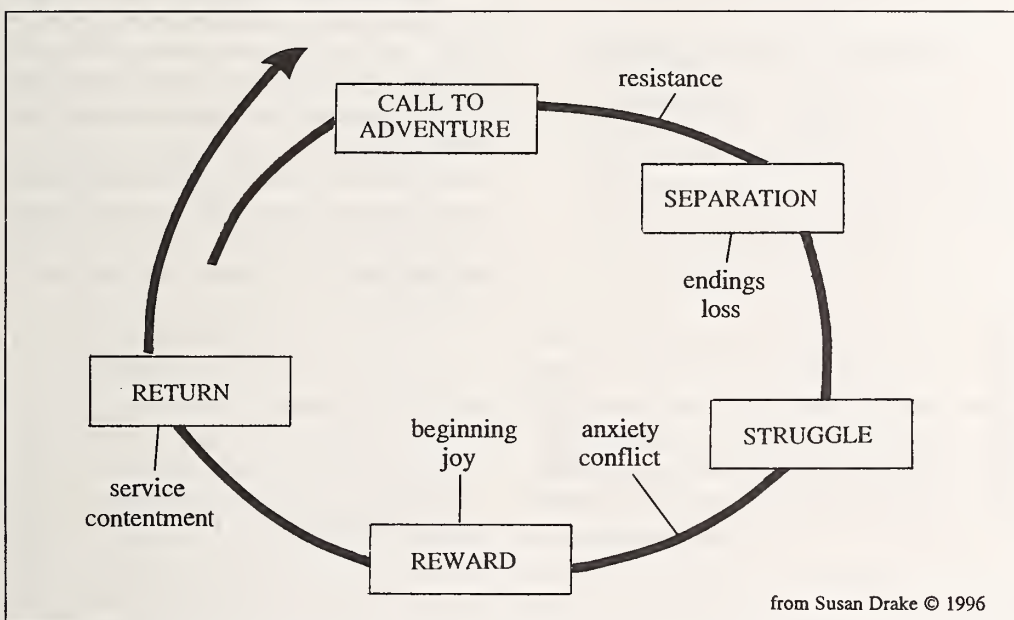
teachers. The teachers are not controlled by bells, as the integrated class is blocked into more than 60 percent of their working day, allowing more flexibility in planning activities. Here they integrate the core subjects: mathematics, science, social studies, language arts, health, and physical education. Students leave the SOAR classroom to attend complementary subjects (option courses such as art, drama, band, outdoor education, industrial arts, home economics, French, etc.) with the rest of the Grade 7 students.³ During some of the option time Val, Sandy, and Glen meet to complete some preparation and planning, although they do not have all of this time as they have some responsibility in teaching option courses.

During the day, SOAR students can be found in traditional settings with a teacher at the front of the class giving a lecture on curriculum concepts, or in small discussion groups, or outside the classroom in the community doing research, job shadowing, volunteer work, or work study. There is a telephone in the classroom that connects it to the community, students' homes, and the outside world. Parents are frequently seen assisting in the operation of the daily routines. There are also times when students are grouped so that each individual teacher can work with a specific group of students, but again there is no permanent grouping by teacher or student.

There are no marks. Student evaluation is based on a portfolio of work which encompasses all core subjects. The portfolio is not just a collection of best work so far, but includes work in progress and that has been reflected on by the student. It includes self-evaluation and plans for future work. The portfolio is presented to the parents in a student-led parent-teacher conference three times a year. The teacher input is a confirmation of skills, knowledge, and attitudes demonstrated to date by the student and recorded by the teacher in a "completed" or "still in progress" format.

The goal of SOAR is to provide a more holistic and integrated education for students, one in which they find their school experience relevant and in which they begin to take responsibility. Val, Sandy, and Glen wished to do away with the fragmented subjects and timetable of the junior high and the assembly-line-like movement of students every hour to

Figure 1 The Journey Metaphor



we were granted sufficient funds to allow the SOAR team to have 30 working days in the next five months in which to plan. On these days, substitute teachers were brought in so that the SOAR team could meet together during the creative part of their working day. The grant from the Board covered the financial concerns, but it still meant the SOAR team members had to prepare lessons for their daily classes while they were away planning, in effect doubling their workload. However, the time away from regular classes was essential in order for them to concentrate on building their new lifeboat. Much of this time was used to clarify and build a common vision, objectives, and student expectations. They also utilized a quiet backwater in the school, a small utility

that change is both necessary and possible" (1995, p. 627).

Ending/Leaving the Past Behind

By now you must be wondering what materials make up this lifeboat called SOAR. What does it look like? Well, imagine three teachers, Val, Sandy, and Glen, in one large classroom with 70 Grade 7 students over the next three years. When you step into the classroom, you can't separate one teacher from another, one class from another, but see a constant ebb and flow from large class, to small group, to individual student activities. All three teachers are responsible for all 70 students, and all 70 students receive instruction and guidance from all three

the sound of a bell. They wanted to remove the isolation of the classroom teacher created by one teacher, one classroom, one subject. The lack of continuity between teachers and subjects with the traditional timetable and with the movement of students into the next grade also could be ended. As well, the grading system could be done away with so that students could progress at their own pace and ability and help facilitate the utilization of integrated curriculum.

That at least was the plan, and over the next six months we worked to have the lifeboat ready to launch for the start of a new school year in September. John took a major role in the project and became part of the teaching team. He agreed to teach half days for the first six weeks of the school year. This would be in addition to his central office duties.

One major practical consideration was the classroom. The school board had also agreed to renovate two existing classrooms into a large one during the summer break. Finally, materials were collected; research articles were read and discussed; a vision was created; and detailed lesson plans made. But as most teachers will tell you, no amount of planning will prepare you for the real thing.

Struggle

So it was with the launching of the lifeboat SOAR. The first year was fraught with hidden shoals and craggy rocks. These hidden dangers were presented by students, parents, colleagues, and the team itself. Students saw other Grade 7 students in the traditional timetable and felt that was the desirable image of junior high school and wished to move. Some parents wanted the return of marks and grades. Colleagues were sceptical of change, and the SOAR team itself had interpersonal eddies to overcome. As principal, I also was in the lifeboat but more as a pilot, a guide, who although not in the classroom everyday, was the person that teachers, parents, and students came to see with their concerns.

Anxiety and frustration were always present. The workload was so great that this was the first and constant stress point. With the daily planning and the excessive evaluation of student work, not to mention having to create everything from lesson plans to student reports from scratch, the SOAR teachers' personal lives were being affected. With mutual

support and encouragement from the administration (principal, vice principal, and curriculum director) and family members, they were able to survive. However, they are still struggling with the notion that "if something doesn't get done, it doesn't get done."

Another anxiety was caused by the uncertainty and scepticism of many colleagues and parents. This kind of subtle criticism wore them down, but with successes in the classroom, support from some teachers, the administration, and, most important, parents, they were able to cope. Most of these conflicts have not been due to a lack of belief that integrated curriculum is the right way to go nor

Another anxiety
was caused by the
uncertainty and scepticism
of many colleagues
and parents. This kind
of subtle criticism wore
them down....

disputes about subject-discipline territories. Most have been the result of the tendency to slip back into the individual, discipline-focused lessons. Each time, the team members needed to reaffirm their underlying beliefs and philosophies about what is worth teaching and how.

Joy

The use of learning outcomes instead of marks was a definite conflict, especially with parents. However with the movement of the school division towards exit outcomes and away from grading, central office support was constant. In fact, the breakthrough moment in the SOAR project came as the result of the move towards outcome- or result-based evaluation and authentic assessment. As the team stated "one of the most powerful features to have been developed was the student-led parent-teacher conferences." The first conferences were held in the fall. Each lasted about 20 to 30 minutes and was led by the student. They presented their portfolio, which included examples of exemplary work, work in progress, and possible areas of improvement. Students

also evaluated themselves and set goals. Teachers added to the profile of the skills, knowledge, and attitudes demonstrated by the students during that period. Many parents stated that it was the first time that their children had discussed in detail the progress of their education. These first set of interviews offered the first overwhelming, positive feedback and confirmed in our minds that we were on the right track, not perfect by any means, but moving in the right direction.

Return

So in the choppy water of school life, the year was full of ups and downs, but Val, Sandy, and Glen hung onto the lifeboat, and soon I, the pilot, had to make a decision about the future of the ship called Jubilee. My decision was to call for an abandoning of the ship. Thus I instructed the rest of the crew (teachers) to form teams and begin to design their lifeboats. The only restrictions I gave regarding building material was that teachers must team teach, develop an integrated curriculum, utilize non-graded student evaluation based on a portfolio, and begin to build a community of learners that included teachers, students, parents, and community members.

I see my role (principal or pilot) as guiding us towards a safe harbour so that the lifeboat teams, SOAR being one, of HMCS Jubilee can find a place and a time in calmer waters to build a new ship — a place where we can reshape our vision of education and with our community prepare for the stormy waters ahead. Environmental degradation, materialism and consumerism, violence, and alienation are all around us. In order for us to prepare our students, the future of the planet, to creatively deal with these problems, we need to change the way we educate them. All of the above problems are interconnected and interrelated, and thus we need a new way of thinking about them in order to creatively bring about solutions. Integrated curriculum is one of the vehicles that can enable students to "think otherwise."

As pilot, I outlined the navigational aids available. The lighthouse was the support and encouragement of the superintendent, and the charts were the SOAR team's own inner wisdom and vision. Finally, the encouragement from parents, colleagues, and the improvements in students, all co-travellers in the lifeboat, pro-

vided the sustained energy and courage needed to survive their first year.

PS: Message in bottle, sent from sinking ship HMCS Jubilee

We are now into our third year of creating lifeboat teams and we are still experiencing difficult swells and choppy water. We are not at the transdisciplinary curriculum stage.⁴ We see it once in awhile, in flashes, many times by accident when we let go of the past. However it is still our vision, our beacon providing us a direction to where we need to go. What we have discovered is that in moving towards integrated curriculum, you must change student evaluation, reporting, timetabling, bells, building, and the organizational and hierarchical structures, including leadership, community involvement, and so on — all are integral to the notions of the use of integrated curriculum in a holistic and transformational education. We have come to the same conclusion as Drake: "We have learned that although other groups may adopt the basic concepts, they only come to subjective meaning when they develop their own strategies to fit their own situation" (p. 53). This is our destination, our port of call, so please join us in our rescue efforts.

NOTES

1. Jubilee Junior High School houses about 520 students from Grade 7 to Grade 9. There are just over 30 teachers and paraprofessionals. The school is dual tracked with a French Immersion stream of about 75 students.
2. Edson is a town of about 8,000, about 200 kilometres west of Edmonton.
3. Half of the 1993 Grade 7 students were randomly chosen to participate in the SOAR program, while the other half were placed in home rooms and moved around with a traditional timetable, taking their core subjects with as many as six different teachers.
4. Transdisciplinary curriculum is one of three models of integrated curriculum outlined in Drake (1993, pp. 46–47). The other two are multidisciplinary and interdisciplinary.

REFERENCES

- Drake, S. (1993). *Planning integrated curriculum: The call to adventure*. Alexandria, VA: Association for Supervision and Curriculum Development.
- Panaritis, P. (1995, April). Beyond brainstorming: Planning a successful interdisciplinary program. *Phi Delta Kappan*.
- Smith, F. (1995, April). Let's declare education a disaster and get on with our lives. *Phi Delta Kappan*.

A Meaningful Classroom Experience

Negotiating Curriculum with Young Adolescents

ANNE REID

Teacher
Princess Margaret Public School
Dufferin County Board of Education

Before we did this project I thought we were seen as just another bunch of trouble-makers who like to hang out on street corners. Now I think our teacher is right; we are special for all kinds of positive reasons. I learned that adolescents have very strong opinions about many topics. I learned that I can stick up for what I believe to be right and true. This project was not like most projects because it dealt with my feelings and the feelings of other adolescents. It has helped me say what I need to say. All I know is that things that really matter go into my soul and all the rest go into my mind. This project did both.

This is a brief sample of the reflective comments from students in my Grade 7/8 class at the end of an exhilarating, rewarding, and powerful experience we shared during a four-month investigation into negotiated curriculum. But this is the end of the story; let's return to the beginning.

For the last 11 years of my teaching career, I have chosen to work with young adolescents. To some adults, this may seem cruel and unusual punishment; for others, teaching this age group is a challenging and joyful experience. I am one of the others. I have come to believe that young adolescents are truly a unique group in our society and, as such, require a school experience that is different from both the primary and secondary experiences.

My practical experience with young adolescents has led me to an uneasiness which stems from the gap I perceive between the holistic needs of young adolescents and the reality of their everyday school program. Adolescents respond to their school life with everything from

eager enthusiasm, to brave compliance, to weary apathy, to outright resistance. My first instinct when faced with such pedagogical and philosophical dilemma was to consult others who may be struggling with similar questions.

I found James Beane questioning what should be the middle school curriculum; Charity James observing the polarities of adolescent needs; Chris Stevenson discussing the reality of classroom experience; John P. Miller reflecting on holism in education and transformational learning; and Garth Boomer experimenting with a process of negotiated curriculum. I found many other writers, teachers, administrators, and parents who were deeply concerned about the issue of schooling for young adolescents. Thank heavens for the farmer's daughter part of me. I love to wallow in theory, but at some point, I have to roll up my sleeves and get to work.

The opportunity to translate theory into practice came through the master's degree I was pursuing at Goddard College in Vermont in 1992/93. This is one scary institution; students are encouraged, even exhorted, to take risks, to experiment, to think! Part of the requirement for my degree was to undertake a self-designed action research project based on my need to change the kind of school experience I was offering to young adolescents.

The procedure I wanted to document was how to negotiate curriculum with young adolescents and how to incorporate the results of that negotiation into a Grade 7/8 classroom. I felt confident about my knowledge and understanding of young adolescents, although surprise is a daily occurrence with this age group. I was attracted to the concept of negotiation for several reasons. When I asked the students what negotiating meant, one responded by saying that is what you do when you can't have everything you want. Although this was a succinct

description, I had to examine my conceptual framework of the word.

Negotiation is a dynamic process. Usually it is applied when there is an issue, problem, or question which two or more parties have an interest in clarifying, solving, or answering. The process of negotiation is interactive, subjective, and qualitative even if the results of negotiation may be defined in a quantified format. The vehicle of negotiation is

**It is impossible to
have a discussion
about school with young
adolescents without
the issue of power
being raised....**

dialogue — verbal and non-verbal, formal and informal, expressive and receptive.

With this overview of negotiation, why would anyone consider it as a process to meet some of the needs of young adolescents in a classroom? First, it addresses the issue of ownership. Look at the eager, curious, and excited faces of children entering kindergarten. From birth, while they explore their sensory-physical world, acquire language, seek an understanding of relationships, young children are actively involved in creating meaning from the world around them. Look at these same faces seven years later and what is seen can be very different. Part of an explanation may be that young adolescents believe that, instead of constructing their own knowing, they are being asked to accept without question the values, intentions, purposes, methods, and knowledge of the adults in their world. In other words, there is no ownership of one's own learning. It is being done to one and for one.

Second, it is impossible to have a discussion about school with young adolescents without the issue of power being raised. From the adolescent point of view, the classroom teacher, however knowledgeable, humane, caring, and well-intentioned, holds great power over their time and space. This is real. As long as adults are legally charged with conducting schools, there will always be

an inequity in the power base of student and teacher. How then might the concept of negotiation help alleviate the profound uneasiness of young adolescents around the power issue? If, through dialogue, the power issue is demystified by those in power making very explicit the values, assumptions, and criteria upon which they base their actions and decisions, then, at the very least, the adolescent can deal with the real, rather than shrink from the imagined. A clear articulation of the teacher's and system's power can be the beginning of the dialogue.

Third, negotiation as a working process in a classroom honours and validates the learners' experience, style, and intentions. It can also provide a vehicle for the teacher and student to have purposeful dialogue about how learning occurs. What might then evolve would be the construction of a dynamic and organic learning theory which would underpin the day-to-day functioning of the class. Imagine a class where everyone, students and teachers alike, understood that learning involves the personal creation of meaning and that the responsibility for learning belongs to everyone in the community of the classroom.

Fourth, classroom practice should reflect the democratic traditions that one's voice has meaning, that one has both the freedom and responsibility to chart one's course, and that collaborative action can effect significant change for the individual and collective good.

Having clarified the concept of negotiation as much as I could for myself, I took a very deep breath and asked the class individually first, then in groups, to respond to the question, What are the issues and concerns that you have as a young adolescent? In response to a comment made by a student, I extended the scope of the question by asking students to record the issues about which they held strong opinions. The classroom filled with chart paper.

The range of questions and issues was intriguing. These students were as concerned with the community and global issues of violence and war as they were with personal issues of bad hair days and relationships with the opposite sex. The questioning and search for a separate identity within or outside the familial and school structure was a high priority. The theme of death and dying was a recurring one which suggested that the concept of personal mortality was a very

real concern to this age group. Their questions seemed diverse, meaningful, relevant, and an honest expression of the common issues and purposes that James Beane proposes as a framework for the middle school curriculum.

At this point, my thoughts were churning with the rich possibilities for learning inherent in this set of information, but I resisted the urge to take over, create the theme, design the learning activities, decide upon the assessment strategies. Instead, we discussed the constraints and parameters within which we had to operate. Parents and administrators had agreed to the project, my college mentor was happy, the custodian had consented to leave our room alone for awhile, and my colleagues just continued to shake their heads.

One of the students commented that we had to find a way of organizing "this mess." Another said that the questions

**Their questions seemed
diverse, meaningful,
relevant, and an honest
expression of the
common issues and
purposes that James Beane
proposes as a framework
for the middle school
curriculum.**

and issues seem to fall into categories and proceeded to demonstrate how the categorization would look. After I suggested the labels, physical, social-emotional, intellectual, and spiritual as a possible way to organize the information, everyone set out to see if the labels would work. When we were satisfied that "the mess" had become manageable, I asked if there was one big question that could be asked about any set of topics. The answer was a resounding "no." A suggestion from one of the students that the question should be, What does it mean to be a male or female adolescent in today's world?, received vigorous support. Thus the framework for the investigation, which was to take three hours a week for the next four months, was established.

The first step was to form the research teams. I asked that each student give me a list of three females and three males with whom they would like to work and I created groups of four or five from these requests. This process removed the constraint of publicly having to select a member of the opposite sex as a learning partner.

The first task of each group was to select the categories of questions which would create the focus for the investigation into what it means to be a female or male adolescent. There were six choices: physical, social, emotional, intellectual, economic, and spiritual. With the time constraints, we decided that one topic was too little and six too many. As I walked around the room listening to the process of selection, I heard several strategies. One group voted after verbally eliminating two categories; another group broke into pairs and each selected a category; another had each member prioritize the six categories and reached consensus by orally defending the choices.

The end results were interesting. Two of the groups chose three categories; four chose two categories. Each of the six groups selected the social category which did not surprise me. Five of the six groups chose the spiritual category which initially surprised me, but upon reflection I realized their choices were a valid representation of the personal and global range of adolescent questions and issues.

The second responsibility of each team was to create a learning plan. This involved selecting the main questions from the many questions which had been on the original lists, deciding who was to do what, creating the process by which answers could be found, and outlining what I called demonstrations of learning, and what the students called sharing information.

Here is an example of one group's efforts. Group One consisted of Brenda, Richard, Jacob, and Raegen. Initially, the two boys decided to research the spiritual questions and the girls, the social issues. After two meetings of the group, however, the four decided to design together, both the spiritual and social questions, but to do the investigation in pairs. The spiritual questions were sub-divided into four topics: religions, cults, death and the after-life, and the supernatural. Specific issues were identified for each of the four topics. This group wanted to know if their peers believed in God, what kind of

customs and rituals were found in different religions, and what kind of architecture the different religions had. They wanted to know if cults had human sacrifices, used brainwashing techniques, begged for money, had code names, killed people, and committed suicide. They wanted to know if humans had souls, if there is life after death, and what really happens when we die. They wanted to know if there were ghosts and other forms of supernatural beings. Richard and Jacob decided that library research would be their primary focus. What they did not decide at this point was how to share their findings with the class.

Their questions related to self, peers, and family: Why do adolescent girls have so little self-confidence? Why are relationships with the opposite sex so important to teens? Why is sex such an issue?

Group One designed seven questions as a framework for Brenda and Raegen's investigation into the social issues of adolescence. Their questions related to self, peers, and family: Why do adolescent girls have so little self-confidence? Why are relationships with the opposite sex so important to teens? Why is sex such an issue? Why, after sex, are boys considered studs and girls considered sluts? Why do adolescents fight with their families? and Why don't parents trust kids? Raegen and Brenda decided on two strategies for information-gathering, surveys with families and friends and interviews with classmates. Information booklets were to be prepared as a way to demonstrate their findings.

What was I doing while all this planning and designing was taking place? In the beginning, I spent time with each group each day. I asked questions to clarify for myself what each group was planning to accomplish but I did not offer any opinion about the proposed

content of the investigations. I asked questions about the division of responsibilities within the group; I asked how I could help facilitate the surveys and interviews within the class, with other classes and teachers, and families outside the building. I asked that, before surveys or interviews were given, I be given a copy. As time passed, I asked each group to select a liaison person with whom I could meet regularly. These meetings were used to deal with any problems that might have arisen in the group and to keep me informed of progress.

At the end of the four months everyone in the class — students and teacher — wrote extensively. If there was one common thread to the writing, it was that none of us had ever experienced anything like this before, either as a student or a teacher. For the students, the collaborative process was both exciting and, at times, bewildering. The same holds true for their teacher. The student journals reflected that the collaborative process was intriguing, empowering, and authentic. The role of the individual in the collective experience was seen as exhilarating but very demanding in terms of the expectations of the group and the realities imposed by being part of a school system.

This story is not over. Perhaps, it is simply that I do not believe that the exploration of creating a classroom experience which has meaning for young adolescents can ever be finished. Wherever there are teachers and students, the desire to improve the status quo is inherent, however limited by structure, values, or intent or however fired by imagination, enthusiasm, and common sense. As a teacher of young adolescents, I am more convinced than ever that the school setting should provide the context through which individuals can pursue personal meaning within a systematic and holistic framework.

REFERENCES

- Beane, J. (1990). *A middle school curriculum: From rhetoric to reality*. Columbus, OH: National Middle Schools Association.
- Boomer, G., et al. (1992). *Negotiating the curriculum: Educating for the 21st century*. London and Washington: Falmer Press.
- James, C. (1972). *Young lives at stake*. New York: Agathon Press.
- Miller, J. P. (1988). *The holistic curriculum*. Toronto: OISE Press.
- Pace, G., et al. (1995). *Whole learning in the middle school: Evolution and transition*. Norwood, MA: Christopher-Gordon Publishers.
- Stevenson, C. (1992). *Teaching ten to fourteen year olds*. New York: Longman.

Opportunities for Students

Integration Through the Eyes of a Mathematician

MARG WARREN

Program Coordinator
Peel Board of Education

Desks in rows, pages of textbook exercises, the teacher at the blackboard, the faces of uninvolved students — these continue to be the hallmarks of many mathematics classrooms. Something in such a scenario inspired me to become a mathematics teacher.

Throughout high school, I never questioned the relevancy of mathematics. It was easy. I did what was expected. What I didn't understand, I was able to memorize. For me, however, the abstract nature of university mathematics made it increasingly difficult to understand. Being motivated was difficult due to the lack of relevancy of the material I was asked to learn. I recognize this to be the experience of many high school students.

Early in my career, I was teaching at a traditional academic secondary school when plans were made to change it into a regional arts school. The new students who came long distances to major in music, dance, drama, or visual arts were extremely bright, creative, and free spirited. When inspired, they were a delight to teach. When uninspired, they were truly a challenge.

I watched them study the arts — disciplined, committed, excited. I watched them study mathematics — apathetic, confused, even angry. I searched to find ways to make their learning relevant, creative, and social. Discovery lessons, unconventional problems, real-life contexts, and applications of mathematics in the arts became our focus. From symmetry and patterns in dance to fractions, graphing, functions, and trigonometry in music to ratios, scale, and transformations in visual arts. Increased levels of motivation and success were evident.

Two years later, I became Mathematics Department Head at another large secondary school. The challenge this time was to successfully pilot the destreaming of Grade 9. Resistance to do

this was high among members of the Math Department, and yet parents and Grade 9 students were already opting out of Basic and General level classes. Failure rates in the Advanced level were climbing, which seemed evidence that Advanced level material and methodology was not the answer for all children.

We spent a year debating, discussing, researching, reading, and planning together. Based on the research that peer-group support was critical for students of this age, we structured a timetable which would allow four of our twelve classes of students to remain together as they travelled to math, geography, English, and science. We wanted to compare their progress to the remaining eight groups of students who would not remain together.

I watched them study
the arts — disciplined,
committed, excited.
I watched them study
mathematics — apathetic,
confused, even angry.
I searched to find ways
to make their learning
relevant, creative,
and social.

A group of eight teachers — two from each discipline — volunteered to begin planning program for the four groups of students. Co-ordination of tests, field trips, homework, and common expectations for behaviour and work habits were part of our early agenda.

Acknowledgment of overlap and agreement to align the content in the four disciplines came more slowly. The biggest challenge, however, came when it was suggested that we might try to plan an integrated unit. At that time, I wasn't even familiar with what integrated meant.

We brought course outline summaries to our first meeting and sat down with arms crossed. Friendly co-workers were quickly transformed into defensive adversaries as we struggled to justify the content we were teaching. The math/science people were labelled "inflexible" and the English/social science people "wishy washy." Different planning and teaching styles, beliefs, values, interests, and strengths were emerging. It became clear that "the countless curriculum guides we had encountered throughout our separate teaching careers, in which step by step objectives were content specific, was not a useful model for this endeavour" (Stevenson & Carr, 1993, p. 26)

We did find consensus on what general skills and behaviours we wanted students to acquire. We recognized the need for compromise in working towards these outcomes. We searched for a theme with which we all felt comfortable working. "Who Am I?" was the popular choice, but how math would fit in was unclear. Through brainstorming, we finally decided that we could focus on the role that numbers and shapes play in everyday life in terms of identifying us. We used the theme to cover estimation, prime and composite numbers, decimals, factors, perfect squares, powers, order of operations, random numbers, co-ordinates, ratio, and geometry.

Students learned the mathematics concepts by focussing on driver's licenses, credit card numbers, bar codes, postal codes, phone numbers, ISBN's, angle of peripheral vision, forensic science, and location of blind spot. Students worked collaboratively to solve problems, carry out investigations, and write creatively. The material was structured so that students could make many connections to their learning in other classes and outside school. They organized their work from all four subjects into a Connections portfolio which was shared with all teachers on the team.

The daily combination of group, individual, portfolio, and optional assignments made the unit accessible for the weaker students and yet challenging for the stronger students. Students were not engaged in repetitive rote exercises, yet test results indicated that they learned a lot of mathematics.

In March, our principal sent six of us in a van to a middle schools conference in Maine. The 24-hour round trip journey and the five days together allowed us

time to tear down the walls between our disciplines, question, debate, challenge, and forever change many of the views we held about teaching and learning and each other.

Upon our return, we engaged the students in a unit which focussed on point of view. We used the theme of animal rights and provided opportunities for students to telecommunicate across Canada and to other parts of the world. Students confidently demonstrated their ability to collect and present data in support of a point of view which they presented as

**We used the theme
of animal rights and
provided opportunities
for students to
telecommunicate across
Canada and to other
parts of the world.**

part of a debate. Throughout this unit, we collapsed the timetable and collaborated with students to organize time around the activities necessitated by the nature of the unit. As Simpson has noted, "A child's day should make sense. It should be about something. Ideally the various activities of the day should work together, building upon one another for some purpose" (Simpson, 1990, p. 26; cited in Pigdon & Woolley, 1993, p. 4). During this unit, they did.

As that first year neared an end, it became increasingly obvious that the students in our four classes were achieving higher results and were appearing more motivated to learn than those in the other eight classes. Regular attendance was the norm, and a team cohesiveness had evolved. It seemed that the benefits of an integrated approach went far beyond the connections made between subject content and skills. Many more students were achieving A's and failures were few. I believe, for the mathematics component, this reflected better acquisition and understanding of skills and content due to an improved learning environment.

The extension of the program to all Grade 9 classes meant that 55 staff members would be involved the following

year. While the original eight were able to share some material and advice, each new team had to muddle its way through many of the same obstacles we had encountered the first year.

Occasionally, conflicts surfaced and personalities clashed. Different methods of organization, varying levels of commitment, and inconsistent expectations were a few issues which sparked discussion. I realize, now, the tremendous professional development which we were engaged in each day. We had discovered a wealth of knowledge and experience within our own building and were learning and growing together.

We chose to work on a unit entitled "Present Realities/Future Directions — A Study of Canada's Indigenous Peoples." The students considered point of view through the eyes of the media and gained an understanding of the causes and effects of stereotyping. Native students were invited to spend a day at our school and through workshops, they shared the details of their lives with our students.

The remainder of the unit was a student-designed inquiry. The use of teacher mentors, conferencing, and negotiation of process, product, and evaluation were all new adventures for the math people. Although not required, most of the student groups included a critical analysis of data reported by the media as part of their focus on a present reality and a future direction. They demonstrated a critical inquiry into where the data had come from and how it had been collected. We witnessed students looking at a real problem through the eyes of mathematics. "In this sort of integration, items of curricular content are unified by the fact that they are all part of the means for solving problems" (Coombs, 1991, p. 8)

One very traditional teacher came to me at the conclusion of this unit and said "You know, bringing in those native kids really brought those statistics alive for my students. They weren't just numbers on the page. They represented those kids and their families." The importance of making connections between mathematics and other subjects, between mathematics and life, had become evident for this teacher.

The math people at the school were convinced of the merits of curriculum integration because they had experienced them. My math colleagues elsewhere, however, remained sceptical. I continued to gather data which demonstrated the suc-

cess of our students. The number of students attaining A's and B's had increased each year since the pilot began. This, however, drew comments that our standards must be lower.

Achievement of the females in Grade 9 mathematics increased dramatically. We believed this was a result of the more humanistic approach to mathematics which occurred as a result of the integrated units and co-operative assignments. Research indicates that women are more attracted to mathematics studies, and achieve better results, when the math curriculum is more humanistic and contextualized (see Borasi, 1992, p. 187). While our attempts at integrating the curriculum were not intended to deal with this issue, our results certainly indicated that there may be a link.

We also noticed that our students' scores on the regionally administered Canadian Achievement Tests were increasing. This standardized test provides two scores for students — one for mathematics concepts and the other for

**We also noticed that
our students' scores
on the regionally
administered Canadian
Achievement Tests
were increasing.**

computation. Our students were spending far less time on drill and practice and less time watching and listening to the teacher at the blackboard. They were learning through group exploration, use of concrete materials, discussion of ideas, and when possible, through connection to a bigger integrated theme. Each year we were using increasingly more of these techniques and each year the CAT results were rising. It would be dangerous to conclude on the basis of such limited data that there is direct correlation. It is, however, an observation which warrants further research.

It would seem reasonable to conclude that engagement in integrated studies has *not reduced* students' ability to understand mathematical concepts or to perform computations.

My background includes a rigorous training in mathematics. There is no one who would defend more vehemently that mathematics by itself can powerfully teach such skills as reasoning, sequencing, building an argument, and making and justifying claims. I would also argue that it is sometimes important and most appropriate to learn mathematics skills in isolation. We must, however, continuously provide opportunities for students to make connections, apply skills, and develop an understanding of how the "threads of learning" fit together to make the big picture. We must help children to build coherence from one learning experience to the next.

Like most mathematics teachers, I had always believed that skills in mathematics must be taught and learned sequentially. While this is true for some topics, there is considerable flexibility for sequencing.

One can move in and out of the mathematics strands working towards several very different outcomes related to a given theme. To allow integration to work, planning cannot be approached from step-by-step content objectives specific to each subject. The reason for everything we do must be the essential outcomes — those in the *Common Curriculum* — that we are all working towards. Perhaps, not surprising, the ten essential outcomes are very close to the list of general skills and behaviours which our group had found consensus around.

We must challenge the view of mathematics currently held by students, parents, politicians, school administrators, teachers — most everyone who came through the traditional school system. Belief in what mathematics is and how it should be learned are deeply rooted and in most cases subconscious. We must

stop trying to defend and justify curriculum and methodologies which are no longer relevant. We must help students to use the power of mathematics to understand their world, solve real problems, and make decisions, judgments, and predictions. Curriculum integration can create these opportunities for students.

REFERENCES

- Borasi, R. (1992). *Learning mathematics through inquiry*. Portsmouth, NH: Heinemann Educational.
- Coombs, J. (1991). *Thinking seriously about curriculum integration* (FOCI). Burnaby, BC: Simon Fraser University, Faculty of Education.
- Pigdon, K., & Woolley, M. (1993). *The big picture: Integrating children's learning*. Portsmouth, NH: Heinemann Educational.
- Stevenson, C., & Carr, J. (1993). *Integrated studies in the middle grades: Dancing through the walls*. New York: Teachers College Press.

Preparing Students for the Next Millennium

One School's Journey in Integrated Planning

FRAN CRAIG

Principal, St. Mary's School, Huron-Perth Roman Catholic Separate School Board

During the 1992/93 school year, the Huron-Perth Roman Catholic Separate School Board began a process of describing the characteristics that its graduates would possess. A draft statement of outcomes was sent out to the various school communities to which all stakeholders were invited to respond. As a result of these consultations, in the final term of 1993, the Board passed its belief statement for all students, entitled the "Huron-Perth R.C.S.S. Board Statement of Direction for Catholic Educational Programs."

In the fall of that year, principals were then asked to present the ten exit outcomes listed in the Statement of Direction to their parents, students, ratepayers, and community partners for the purpose

of selecting one of the outcomes as a focus upon which to build a school action plan. This was done through a survey in the 18 schools within the jurisdiction.

This is an account of one school's journey — St. Mary's School, Goderich, a dual track, English and French Immersion school with almost 400 elementary students. As principal, I began discussions with the staff of 17 teachers in the fall of 1993, my first year at the school. In order to develop a school action plan, it was important to begin by opening the lines of communication in regard to educational change.

From the results of entry interviews and a survey of all staff, parents, and service groups within the school, as well as information attained through a Board-generated survey, it became apparent that the focus would have a broad nature: "Competent Communicators Incorporating Technology Through Research." But what would this focus mean in practice?

What should students know and do? How should we structure their learning experiences in order to produce the desired outcomes?

At the same time as our Board and individual schools were moving forward on school action plans, the Ministry of Education and Training released its first draft of the *Common Curriculum*. Parents of St. Mary's School were invited to join the school team to discuss the elements of a school action plan, examine various approaches to planning, and select specific outcomes from the *Common Curriculum* which would fit our focus. Six parents agreed to join the staff. A code for discussion and respect for all participants was agreed upon. After all, this was a new approach to planning and participants had to feel comfortable if the project was to succeed. As well, I wrote various business, industries, and service clubs in the Goderich area and asked if any would be interested in talking about possible links as education partners as the venture unfolded.

Once the three planning teams were established, with six teachers and two parents on each, the lengthy process of trying to narrow the focus and select specific outcomes began. It was decided by the large group that we would select, as indicators of Competent Communicators, reading, writing, speaking, listening, viewing, and pre-

senting outcomes related to the area of research. Because of the volume of outcomes to be reviewed, one group took reading, another writing, and the third group took the remaining areas of speaking, listening, viewing, and presenting. After many meetings and much discussion, the outcomes were selected which pertained to research. The next task was to determine at which grade level the outcome would be dealt with through informal, formal, or extended forms of teaching. It was important to have a sequential and systematic approach to teaching the desired outcomes.

After a technology assessment, a review was done in order to develop appropriate in-service. Luckily Apple Computer was interested in our plan and provided us with a bank of six computers to help us get started. This was really a motivating factor for everyone. As well, one teacher on staff, Loretta Ayotte, had incredible interest and expertise in this area and began to provide in-service with teaching staff to assist them in their own learning process. Technology outcomes were then added to the school action plan, based on the Board's document *Capable Users of Technology — Competent Communication/Information Technologies*.

Ultimately, a lab of 18 computers was assembled in the library thanks to Board support for our initial plan for school improvement. Classes were rotated through the lab, working to develop the knowledge and skills needed to incorporate the technology into their research work. As well, regular in-service was held for staff, and Loretta and a number of staff ran introductory classes for parents in the evening. It was a "pay as you play" invitation that became a natural fund-raiser for acquiring new software for the lab. The response was overwhelming, and parents enjoyed the opportunity to learn what their children were learning in school. Topics such as word processing, databases, spreadsheets, telecommunications, and software applications were offered. Interest was so high that, with a gentle nudge, the school was selected as a site for courses offered by the Technology Leadership Centre based in London. Now many staff and parents are involved in their own lifelong learning at our school, saving travel time and money, while expanding their computer skills.

At the end of the third term in 1995, it was decided by the staff that in order to make the process real, the learner outcomes would be divided into two phases

for implementation and evaluation. Specific outcomes would be taught in the 1995/96 school year, while others would be the focus of 1996/97. The staff then set to work trying to define "look-fors" or rubrics for each division. The rubrics list the desired knowledge and skills that students can demonstrate within their work. The rubrics for each project are presented to the students, which helps to focus the teaching, guide the students in their learning, and evaluate the process and the product of the research. This is a new form of evaluation and it is a time-consuming task at the outset of the project but critical to ensuring that the outcomes are being achieved and demonstrated by the students.

A lab of 18 computers was assembled in the library, thanks to Board support for our initial plan for school improvement.

Classes were rotated through the lab, working to develop the knowledge and skills needed to incorporate the technology into their research work.

As discussed by the staff in June, a new format for long-range plans was field tested in September of 1995. The plans included the main areas of the *Common Curriculum* as well as outcomes for religion and family life. As part of our long-range plan, teachers will address all exit outcomes from the Board's *Statement of Direction* over the next two years by having the students do one research topic related to one of the ten outcomes per term. During the 1995/96 school year, all students will do a research project, appropriate to their grade, about what it means to be "witness to the truths and values of the Catholic Faith," "responsible citizens in a global community," and "living a healthy lifestyle," all the while using the same set of outcomes for research and technology as they proceed.

Evaluation is occurring on many lev-

els. In the first year of planning, teachers worked to establish criteria for portfolio assessment. This is an ongoing process, and teachers and students select work for their portfolios that represents growth over time, showing both the process and product of their research or other school work. During the Curriculum Fair, which was adapted to suit the school action plan for research, data were collected on the number of students who used technology: in word processing, in the use of ready-made databases, in importing graphics, or in creating graphs. It will be interesting to see if the numbers vary in future assessments. As well, students participated in two small subtests on the use of study skills from the Canadian Test of Basic Skills, to provide a global picture of what knowledge and skills the students possess in the use of reference material. In the area of technology, teachers have just started to use an individual technology rubric which is appropriate per grade and division, and the inventory of acquired skills will follow the child, just as their portfolio information does at the end of each school year.

At St. Mary's School, we are also excited about our new educational partner, Champion Road Machinery, which has agreed to be our school/community partner. We are in the planning stages of an intermediate project which will look at applying the classroom outcomes within a real working environment. This is also a great avenue to do real-life research and presentations about business in the '90s. We look forward to this relationship growing in the future.

It takes time and patience to cultivate a climate for change. The needs and the benefits for change must be evident, and the change must occur in manageable and meaningful steps. At St. Mary's, we believe that through the combined effort of staff, parents, and community, we are in the midst of a very positive change, although much remains to be done. We are on a journey, and the road map lies before us. We must only continue the journey with faith, stopping to re-evaluate where we are at and where we are going, checking the signposts, evaluating our progress, coping with detours and delays, but always remaining focussed on our destination. Why? For the most important reason of all, because we believe we can equip our students with knowledge and skills that will assist them as they travel into the next millennium.

Guides for Planning

A Practical Process for Teachers

Creating Outcomes-Based Integrated Units

PHIL MAIN

Education Officer
Northwestern Ontario Regional Office
Ministry of Education and Training

Much has been written in recent years about the advantages of using integrated curriculum to enable students to achieve the outcomes in *The Common Curriculum*; however, little has been published about the processes and structures needed to develop and implement effective integrated units.

As consultants for Transition Years teachers in Northwestern Ontario, Mary Ellen French and I have had numerous opportunities to facilitate workshops on creating integrated modules. In collaboration with the teachers with whom we have worked, we have evolved processes and structures which facilitate the creation of integrated units. Following the release of *The Common Curriculum*, 1995, we have had the opportunity to introduce these strategies to teachers of Grades 1 to 12. As the process has been refined, we have found that the strategies are applicable in planning integrated units for all grades.

Before taking a great deal of time to collaborate with other teachers in planning an integrated unit, teachers need to be assured that they will be able to implement it. In many schools, complex timetables may create an almost insurmountable barrier to implementing meaningful integrated curriculum. In elementary schools, where students remain with one teacher for most of the day, scheduling is not an issue, but this is not the case in many secondary schools. There are numerous innovative solutions, but the most obvious for Grade 9 students is to assign teachers to classes for longer blocks of time. In other instances, Grade 9 students may take one class labelled integrated studies or they may be assigned to one teacher for one half day per week for integrated studies.

Furthermore, teachers need common planning time so that teams of teachers may collaborate on a regular basis. Without the support of administration, and the assurance that integrated curriculum is a priority, few teachers are willing to take the time required to develop these units.

Teachers are also concerned about the number of subjects that should be integrated and the length of an integrated unit. It must be stressed that there is no absolute answer to either of these concerns. First, there are different forms of integration identified in *The Common Curriculum*: Parallel Content, Content Connections, Concept Connections, and Cross-curricular Connections with each becoming increasingly more complex. Regardless of the label, there is a continuum in the development of integrated modules, and it is important that teachers begin with less complex forms so that both teachers and students are successful in their first tentative steps. It is preferable, then, that initial units are presented in the form of Parallel Content so that only two or three traditional subjects are integrated for only a few days — for example, within one program area such as Mathematics, Science, and Technology. As the comfort level of the teachers and students increases, it is inevitable that longer, more complex units will evolve.

When teachers divide into teams to plan integrated curriculum, diversity of experiential and educational backgrounds of the team members is extremely important. For example, a team composed of all English specialists will have a great deal of difficulty developing meaningful student activities for subjects other than English, and if this is attempted the activities are likely to be very superficial. Hence, the most effective teams are those which offer the greatest diversity.

To begin the planning process, teachers have told us that they want a linear, step-

“In collaboration with the teachers with whom we have worked, we have evolved processes and structures which facilitate the creation of integrated units, and we have introduced them to teachers of Grades 1 to 12.”

—Phil Main

by-step process, which I have detailed in Figure 1. However, as the process is being used, inevitably, it becomes personalized so that the order in which steps are completed may be changed; some steps may be left out and some steps may be revisited several times.

In Step 1 of the planning process, team members select essential outcomes, which begin on page 25 of *The Common Curriculum*; the amount of time to be spent on the unit will determine the actual number of essential outcomes selected. If this is a first attempt, our suggestion is to limit these to three or four essential outcomes. It is important to note that teachers should select only, for example, 1a, 5c, and 10b rather than all of 1, 5, and 10. These essential outcomes then drive the selection of topic, theme, and specific out-

comes. Many teachers, however, because of their experiential backgrounds, find it easier to begin with content. Thus, they select a topic, develop concept webs (see Figure 2), and then choose essential outcomes. Regardless of the point at which the team begins, it is important to recognize that content is the vehicle for achieving the outcomes.

Teachers must be assured that they do not have to limit the content in integrated units to that which has been used in the past, and with this freedom, there are a number of key considerations when selecting the subject matter for an integrated unit. Primarily, teachers should choose a topic to which the students can relate and with which the collaborating teachers are comfortable. Second, it is important to ensure that there are suffi-

cient resources within the community including human, technical, and print to develop the unit in depth. Parents, grandparents, or other members of the community are often pleased to be asked to contribute their expertise.

One of the most important factors in using integrated curriculum is that the students can see connections. As a result, in Step 4, it is suggested that teachers should brainstorm concept webs to connect topics, ideas, and activities. It is recommended that one word which is relatively concrete and specific should be selected for the centre of the page, for example, "trees" rather than "environment." The teachers would then brainstorm and connect similar ideas. These webs are likely to be revised a number of times, with each revision becoming increasingly more complex. Figure 2 is an example of a web which has been revised numerous times, with potential student activities reflected in the final draft.

Once the teachers are comfortable with creating webs, it is useful for the students to learn to do this either as a group or as a whole-class activity. In fact, concept webs may be used as a diagnostic activity in which the students demonstrate their knowledge of the topic by creating their own concept webs followed by identifying potential research projects. Furthermore, it may be useful at this stage for the teacher to have the students select specific outcomes from *The Common Curriculum* and design activities and research projects which they would like to pursue either individually or in small groups.

In the book edited by Heidi Hayes Jacobs, *Interdisciplinary Curriculum: Design and Implementation*, D. N. Perkins writes of the necessity of selecting "fertile" themes and this is stressed in Step 5 on the instruction sheet. Both teachers and students should clearly verbalize the connections of knowledge, skills, and values to be investigated in the unit with a clearly written thematic statement.

At this point, it is important to differentiate between thematic statement and topic. Theme is defined in *Webster's Third New International Dictionary* as "an idea, ideal or orienting principle that is specific, dominant or persistent ... and often effective in controlling and activating belief and conduct in a direction." Conversely, a topic is usually expressed as one word which could be open to

Figure 1 Planning an Outcomes-Based Cross-Curricular Unit

It is important to have a team of up to four or five teachers with a variety of subject expertise to avoid superficiality.

Note: These steps will not always be completed in this order. You may be more comfortable at first beginning with a topic or content. As you become comfortable with planning integrated units, you will move toward beginning with outcomes when planning. You may also discover that some of these steps are no longer required.

1. Select up to three essential learning outcomes from *The Common Curriculum* which have natural connections.
2. Select a topic which connects the essential outcomes you have chosen, of which the collaborating teachers in your group have a comfortable working knowledge, and which you feel will be of interest to the students. (You may wish to include students in this process.)
3. Write the topic or theme in the centre of a large piece of paper. Try to ensure that the concept or theme is relatively concrete — e.g., instead of using environment, select trees; instead of careers, select nurses.
4. Brainstorm, then refine concept webs, showing connections. This will be the content base, the vehicle for teaching the theme and outcomes.
5. Write a thematic statement for this content.
6. Turn to p. 106 in *The Common Curriculum* where the essential outcomes are cross-referenced to specific outcomes. Select specific outcomes which are appropriate for you and your students and complete Column 1 on the accompanying chart.
7. Using Bloom's Taxonomy as a guide, write student activities in Column 2. Note: it is preferable to write these as an outcome statement — e.g., the student will ... (produce) ... (a product).
8. Complete the chart noting resources, times, and assessment tools. Preferably, every activity should be assessed in some fashion.
9. Examine each student activity to ensure that it is an integral part of the unit and supports the thematic statement.
10. Can you create an exhibition or celebration to conclude the unit? If possible, this should be a demonstration of the essential outcomes.

many interpretations. For example, a suitable topic for a primary integrated unit might be homes, but the thematic statement of what the students learn about homes, written in age-appropriate language, could be, "People use available materials to build shelters for protection from the environment. Compare and contrast our houses to those in two other cultures. Design and model a suitable shelter for visitors to another planet."

There are a number of advantages of writing a thematic statement for every unit. It gives the integrated module unity, a touchstone against which all student activities may be measured and a window through which students should clearly see connections. Frequently, units are designed with a "potpourri" approach, so that the *raison d'être* for achieving outcomes with integrated curriculum becomes lost in a series of activities which are somewhat related but to which the students may legitimately react by asking, "What is the point of all this?" For example, in designing a

unit on the topic of trees, the students could learn to identify different types of trees, investigate how to determine the age of trees, and learn how forestry personnel determine the age of trees. But, unless this is linked by a thematic statement in which the students understand the connections, the entire point of integrated studies may be lost. Preferably, the knowledge, skills, and values in this unit may be linked by a thematic statement about how the forestry industry uses modern technology to determine cutting areas and plan for reforestation, and thus, preserve the environment.

Following the writing of a thematic statement, specific outcomes from *The Common Curriculum* should be selected in Step 6; these will determine student activities in the unit. The cross-reference chart on pages 106 and 107 is an invaluable tool to identify specific outcomes which are related to the essential outcomes selected earlier. Note that it is not necessary to select outcomes from all four program areas for every integrated unit. If teachers

are creating a unit for Personal and Social Studies: Self and Society, for example, they need only select outcomes which are labelled with "P." Fortunately, this laborious process of selecting specific outcomes and transposing them into a planning template, such as the one in Figure 3, has been facilitated with modern technology. The CD-ROM disk containing *The Common Curriculum* has been distributed to every school board in Ontario. When used with Filemaker Pro 2.1, which is readily available from TVO, the essential outcomes can be entered one at a time on the search screen.¹ As relevant specific outcomes are found, they may be exported into a planning template in word-processing software. The number of outcomes selected will be determined by the length of the unit and the ages of the students.

In outcomes-based education, the students need the opportunity to demonstrate their performance in meeting the outcomes. Thus, in Step 7, when teachers begin creating student activities, they real-

Figure 2 Concept Web

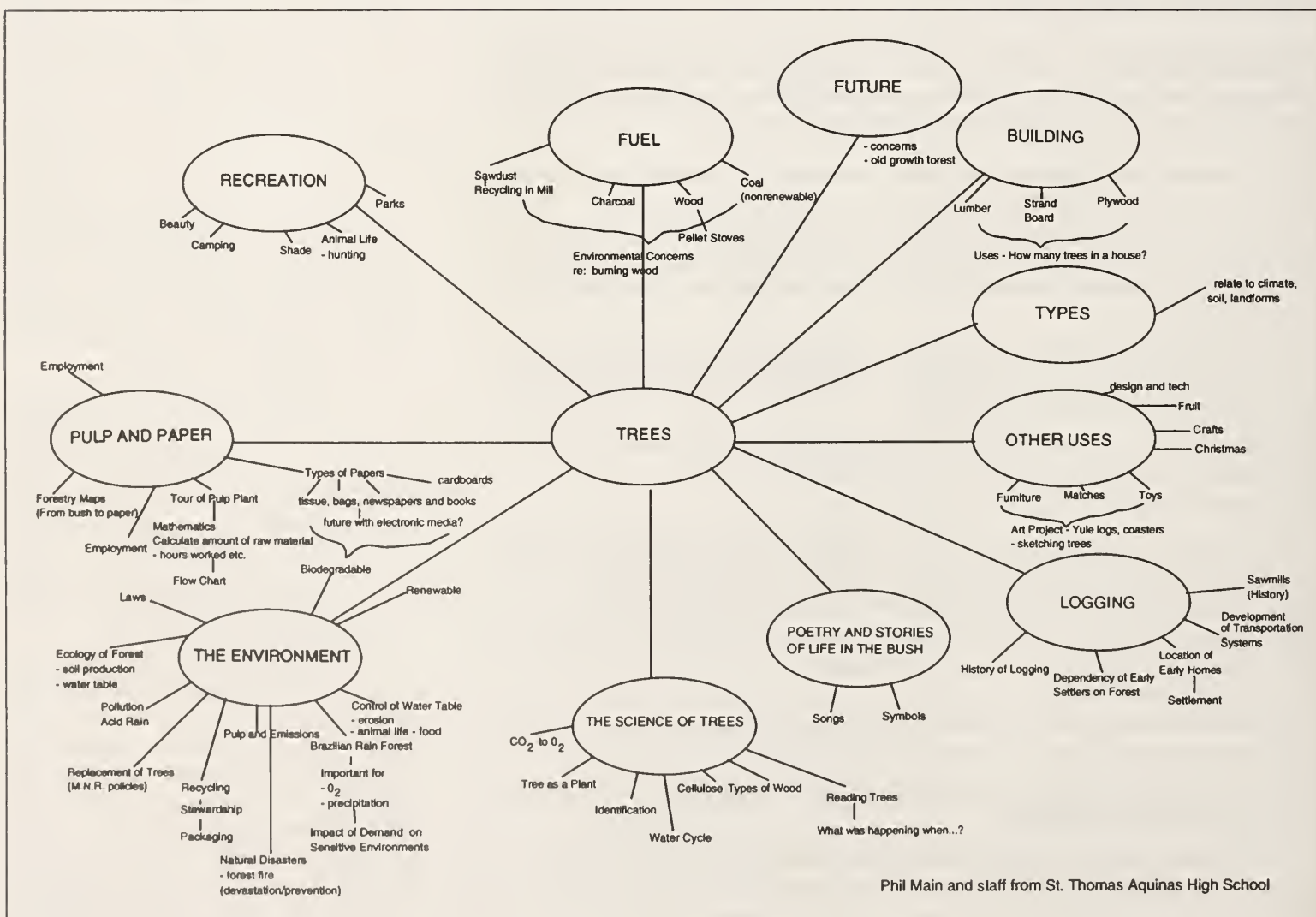


Figure 3 Outcomes-Based Unit Plan

TITLE: _____						
TOPIC: _____						
THEMATIC STATEMENT: _____						
ESSENTIAL OUTCOMES: _____						
1. Specific Outcomes	2. Student Activities (I) Individual, (G) Group, (T) Teacher-directed	3. Resources	4. Time Line	5. Assessment		
				A	B	C
						A. Who 1. Teacher-Individual 2. Teacher-Group 3. Self-Individual 4. Peer-Individual 5. Peer-Group B. How 1. Anecdotal 2. Observation Checklist 3. Rating Scale/Rubric C. What 1. Written Assignments 2. Oral Presentations 3. Homework 4. Journals 5. Conferences or Interviews 6. Investigations 7. Open-ended Problems 8. Contracts 9. Portfolios 10. Paper and Pencil Tests 11. Other _____

ize that many activities are not really new. However, the purpose of the activities has now changed; they are now the means by which students achieve outcomes, and the students' accountability becomes an important factor. Thus, once an activity has been chosen, the planning team must select appropriate assessment techniques. To make this as easy as possible and to remind teachers of the wide range of assessment tools available, the assessment column on the template in Figure 3 contains suggestions for who, how, and what strategies may be used. This is not meant to be a prescriptive list, but should be changed to meet the needs of the students in a particular setting. By selecting a number from each category, and writing the number in the appropriate column, it is possible to complete this important facet of the plan with relative ease.

After initial contacts with integrated curriculum through reading or workshops, many teachers say that they need to know more about integrated curriculum before they introduce it to their students. But designing and implementing an integrated module is a wonderful opportunity for teachers to learn by doing and to demonstrate leadership in curriculum design. Teachers are encouraged to

jump into the shallow end of the pool and get their collective feet wet, share their knowledge with their colleagues, and have the satisfaction of gradually learning to swim in the deep end. More important, their students will be grateful for the extended opportunities they have been given to learn in the "real-life" focus of integrated curriculum.

NOTE

1. Copies of the software can be obtained by contacting: Julie Philip at TVOntario at 1-800-613-0513, Extension 2377, or in Toronto at 1-416-484-2600, Extension 2377.

REFERENCES AND SUGGESTED READING

- Drake, S. M., et al. (1992). *Developing an integrated curriculum using the story model*. Toronto: OISE Press.
- Hart-Hewins, L., Goldman, N., Parkin, F. (1993). *Integrated programs for adolescents*. Markham, ON: Pembroke Publishers.
- Jacobs, H. H., et al. (1989). *Interdisciplinary curriculum: Design and implementation*. Alexandria, VA: ASCD.
- Miller, J. P., Cassie, J. R., & Drake, S. M. (1990). *Holistic learning: A teacher's guide to integrated studies*. Toronto: OISE Press.
- Pegis, J. M., et al. (1993). *Curriculum integration in the transition years*. Toronto: Metropolitan Toronto School Board.

ORBIT

Ontario's Magazine for Schools

published by
The Ontario Institute
for Studies in Education



Orbit theme issues are
current, relevant,
and Ontario-based.

**For the '96 list and/or
back orders, call:**

Phone: (416) 447-8186
Fax: (416) 447-2713

Muskoka's Initiative in Integrated Programming

Examples of Creative Programs

KEN THURSTON

Superintendent
Muskoka Board of Education

Throughout Ontario, educators are in the process of implementing *The Common Curriculum*. This task has brought renewed vigour to the development of integrated curriculum and, more importantly, integrated learning. This process is presenting its share of challenges to Muskoka educators, but the successes and benefits for students are becoming increasingly clear as we move towards full implementation.

A variety of programming options exists in the provision of an integrated curriculum. Within *The Common Curriculum*, four approaches to integration are described. This range comprises Parallel Content, Content Connections, Concept Connections, and Cross-curricular Connections. This is a useful model for teachers and provides a logical continuum of options.

With both parallel content and content connections, the starting point for planning, and the focus of delivery, is the traditional subject disciplines. These approaches vary only in the amount of co-operative planning by the teachers and by the degree to which the students are made to see the connections among subject areas. Both approaches are effective ways in which to experiment with integrated instruction, without having to overhaul the timing and staffing structures within the school. The difficulty with these forms of integration — particularly parallel content — is that the students may not readily recognize the generic skills and concepts being studied since the connections are not implicit to the program. As a result, integrated teaching may take place without integrated learning.

The starting point in planning for concept connections and cross-curricular

connections is a topic, theme, or issue. Concept connections are much more focussed, with the teachers playing a more significant role in selecting the focus and planning the unit of study. Content, skills, and values are pulled from the traditional subject areas and presented more holistically as they relate to the topic of study. The broader subject areas as presented within *The Common Curriculum* (i.e., Arts; Language; Math, Science, and Technology; and Self and Society) are generally used to focus planning of concept connection units of study. Cross-curricular units incorporate

Concept connections are much more focussed, with the teachers playing a more significant role in selecting the focus and planning the unit of study.

the knowledge, skills, and values as they relate to the topic of study without reference to the traditional or broader subject structures.

The advantage of these models of integration is that the interrelationship of the information is complete. Students are not required to make connections because the unit of study is the organizer and the subject disciplines are of little relevance to the learning. One of the concerns that some educators have about these approaches is that the skills and knowledge of the disciplines may not be addressed in the traditional sequence, thereby raising the possibility that certain content may be missed or that the vertical linkages of information and skills may be weakened.

It is useful to keep these approaches to integration in mind, but in practice the form and nature of each program is quite unique. Integrated programs are generally site specific — varying with each group of teachers, students, and the organizational structures and limitations within each school. For this reason, there is seldom much opportunity for teachers of integrated programs to fully utilize materials developed by others or even to re-use materials from year to year.

Within Muskoka, a range of effective, creative programs has been developed. Each program continues to evolve as the comfort and understanding of parents, students, teachers, and administrators grow.

K. P. Manson Public School

At K. P. Manson Public School at the south end of the Board's jurisdiction, two intermediate teachers, Esther Moreau and Bill Southwood, have developed an innovative, multi-age, interdisciplinary program. This organizational structure is similar to the content connections model described in *The Common Curriculum*. Each teacher is responsible for approximately 26 students from Grades 6, 7, and 8. They have deliberately arranged the classes to ensure a high degree of heterogeneity.

In developing their program over the past three years, these experienced educators have constantly reflected upon their successes and concerns. Both teachers have experience in delivering the more traditional subject-based instruction that has been typical of Grades 7 and 8. Faced with the challenges of implementing the Transition Years initiatives, they searched for a more meaningful, effective model.

Typical of most innovative educators, Esther and Bill started slowly and revised their program constantly over the past three-and-a-half years. Initially, the outcomes for each unit were organized into traditional subject areas. Currently, the unit plans are organized in relationship to the Ten Essential Outcomes and, for the most part, are addressed holistically during the unit. Their units of study last for approximately three months. A wide variety of themes are used to focus the learning within the classroom. Themes are selected in consultation with the students, keeping relevance and the availability of resources in mind. The teachers find themes to be motivating for the students

and have difficulty limiting the topic to fit the time allocation.

Specific skills, particularly from mathematics, are taught directly and reinforced within the integrated units. The constantly evolving nature of their program highlights the difficulty with sharing integrated curriculum. While acknowledging the usefulness of other units as springboards, Esther Moreau comments, "If there was a unit developed by people who thought exactly the way we thought, we would use it — but we haven't found it yet."

Collaborative interdependence within student support groups is a key feature of this program. Each group takes collective responsibility for monitoring progress, assigning specific tasks, and evaluating peers.

The constant revision of the evaluation and reporting systems to ensure consistency with the program has been a challenge for these teachers. They have found the Conference Board of Canada's "Employability Skills Profile" to be a useful tool for framing student assessment and communicating with students and parents.

Pine Glen Public School

At the north end of our Board, an innovative junior-level program has been developed by Terri Howell at Pine Glen Public School. This program shares many similarities with the K. P. Manson program. Terri also has a multi-age class. Interaction and co-operation among students are encouraged, although specific support groups are not assigned. Specific skills are introduced on a needs basis, usually through direct, small-group instruction.

The most significant difference in this program is that themes are seldom used in program planning. Terri prefers to plan using the ten essential outcomes. She feels that themes can limit a teacher's ability to focus on the precise needs of the students. While integrated, thematic units are planned occasionally, Terri prefers to use life-like production processes (e.g., construction, publication) as the vehicles for motivating and focussing student learning. Terri explains, "When planning a theme, it is too easy to focus on the topic rather than the student outcomes."

In her program, the students are encouraged to apply their learning to contexts which are meaningful for each individual. Terri believes that whenever

a theme is selected, there are those who are engaged by it and some who do not relate. She is also concerned that some themes last too long and that students lose interest.

Bracebridge and Muskoka Lakes Secondary School

At Bracebridge and Muskoka Lakes Secondary School, Grade 9 has evolved over the past few years into an extensively integrated program. In response to Transition Years initiatives, supported by *The Common Curriculum*, teachers have developed an organizational model which is radically different from the traditional Grade 9 program. While this transformation is not unique to this

The constant revision of the evaluation and reporting systems to ensure consistency with the program has been a challenge for these teachers.

school, or to the Muskoka Board, the degree of change at BMLSS is quite significant.

The Grade 9 teachers, under the leadership of Grade 9 Co-ordinator Heather Kaye and Principal Harper Harrison, have organized the year around the four subject areas. Each quadrant is allocated equal time. Students study two areas each semester, one quadrant in the morning and one in the afternoon.

The teachers responsible for each subject area work as a team in planning curriculum, scheduling time within their total allocation, and evaluating student progress. Common planning periods have been scheduled. Special education resource teachers have been provided for each team to assist with program modification and enrichment.

Each subject area team has organized their time, delivery, and curriculum differently. The Math, Science, and Technology Team has structured its half days by rotating students through a three-day cycle in

which one morning is spent on technology and the other two split between math and science. There has been movement of curricular topics within the quadrant, and the sequence of instruction is planned to reinforce learning throughout the semester. Interdisciplinary events such as a recent "buoyancy challenge" are also planned co-operatively.

The Arts program is organized and delivered using a similar model. Integrated performances provide an opportunity for both integration and real-life application.

In the Languages area, students spend equal amounts of time each day in English, French, and keyboarding, with the latter being used as an opportunity for students to apply their language skills rather than learning to type through a series of isolated activities.

The team of teachers responsible for Self and Society has a less rigid organizational structure which varies with the particular topic of study. Each Friday the students are brought together for a large-group activity or lecture. The curriculum has been extensively revised.

The strength of this model of integration is the flexibility that it provides for each of the teams. There is a clear recognition that each team is at a different point of preparedness and that each subject area has different requirements. Further, there is an acknowledgment of the importance of subject specialists working co-operatively to create curriculum which is relevant and engaging for today's adolescents. Principal Harper Harrison stresses this point, "Generalists cannot do as well as a team of specialists."

Watt Public School

A fourth example of integrated programming is a school-wide model at Watt Public School. This program makes use of a building and piece of property adjacent to the school. Through corporate, community, and Board sponsorship, the school staff, under the leadership of Principal Bev MacWilliams, was able to lease an abandoned fish hatchery and the surrounding grounds. This site has become an excellent setting for a wide range of environmental, recreational, and artistic studies.

To make the most effective use of the property, the school staff has allocated a staff member to work on location each morning. This teacher, Thomas Knight,

collaboratively plans activities for both full classes and small groups of students. The activities are planned with the classroom teachers and in response to student interests, talents, and needs.

The focus of each activity at the "fish hatchery" is the development of a product. Students work as a team to create products which have a practical purpose, solve a particular problem, or have artistic merit. Whenever possible, the projects are based on needs that have been identified by the students themselves. Students are also involved in the planning and designing as well as the production and sharing of the projects. Recent activities have included constructing knights and dragons from tin cans, build-

ing a stone barbeque, and producing a tether-ball stand to address a need for more playground apparatus.

Learning by doing is a fundamental principle of the integrated program at Watt. Thomas Knight attributes the success of the program to the opportunity to move beyond the standard time and space confines. He comments that "Most teachers understand and believe in authentic, active learning but are limited by the restrictions that exist within the regular classroom."

The staff of Watt Public School are also finding that different students excel while working at the alternate site. This appears to be partially due to the emphasis upon different skills and knowledge

(technical, creative, artistic) as well the preference of certain students to work for longer blocks of time and in alternate settings. All projects are completed co-operatively, fostering an increased respect for the various learning styles and talents of the students.

Many more examples of integrated programming exist within the Muskoka Board of Education. The four programs highlighted in this article demonstrate the breadth of options and the range of benefits to both students and educators. As we continue in our journey towards full implementation of *The Common Curriculum*, these programs will continue to evolve.

Teachers Working Together

Grade 9 Teachers' Support Group

LAUREN MACDONALD

Teacher, Forest Hill Collegiate Institute
Toronto Board of Education

I teach at an academic secondary school of about 1,000 students and about 56 teachers. We are one of a number of schools that have destreamed Grade 9 and are now faced with changing courses to reflect board and provincial curriculum initiatives.

Our restructuring committee planned several initiatives when destreaming was mandated, but because it is difficult to find common planning time, not all of them have been effected. This year we decided to work from another direction. We have begun the Grade 9 Teachers' Support Group, which will be a vehicle to work together, get some integration planned, help the Grade 9 students become better students, and lessen teacher stress.

The group was launched with a breakfast meeting to which all 33 Grade 9 teachers received a special invitation (proper stationery used). We served muffins, juice, and coffee and met in the staff room. I introduced the concept that

such a group could form a supportive collaborative structure for teachers to use to plan, discuss, and work together. Then we went around the group offering anecdotes about positive incidents in Grade 9 classrooms this year. One teacher remarked

We are one of a number
of schools that have
destreamed Grade 9 and
are now faced with
changing courses to reflect
board and provincial
curriculum initiatives.

that one of his students was going out of his way to help a new ESL student in the class. A communications technology teacher related an occasion during a field trip when one of the students showed leadership qualities in collecting information from local businesses. Another noted

that there were more Grade 9 students who were participating in school clubs and events than in other years. (This reflects, I believe, our successful Grade 9 mentor program and the increased comfort level of the Grade 9 students early in their secondary school career.) After 10 to 15 minutes, the meeting wrapped up with a call for teachers to form an ad hoc steering committee to decide upon a plan of action for the group.

Since the initial meeting, the steering committee has met to brainstorm ideas for what we might do that would have positive consequences. We have discussed some possibilities with the school administration team, such as offering a peer tutoring course to involve senior students with Grade 9 subject classes and setting up a pilot cadre of two Grade 9 classes which would share four teachers; the teachers of the cadre would have common planning periods to develop the use of portfolios and discuss their group.

I have met with the visual arts and music teachers to begin planning an extension of the very successful Arts Week that they held this year. We looked at how the other subjects could participate in this as the culminating event for a thematic unit on media in the fall. I believe we could develop an integrated approach with participation from teachers in science, English, and communications technology. It could be theme and/or skills-based depending on the direction participants wish to take. In

communications technology class, for example, students could look at media in a thematic way, examining how publicity is used, and from a skills point of view, students could look at the work they produce to choose an appropriate segment of the media. Science and English would also approach the unit from a skills standpoint. The final event could include a Young Authors' Conference as well as

the art exhibit, concerts, and speakers that we had this year.

After each meeting of the steering committee, I have written brief notes to keep the Grade 9 teachers informed. Now we are ready to meet with the larger group again in order to make some decisions and start some initiatives. We have some interesting possibilities to discuss. One is to begin collecting work for

a cross-curricular portfolio for each student so the teacher can "see" the "whole" student. Another possibility is grouping the teachers into partnerships in order to visit each other's classrooms. Perhaps by seeing another teacher visiting in a class, students will receive a positive message about teamwork, and teachers will have an opportunity get to know each other in a classroom context.

The Norfolk Model

Integration of Outcomes Through Life Learning

PETER RASOKAS

Supervisor of Curriculum
Norfolk Board of Education

KAREN ANDERSON

Supervisor of Curriculum
Norfolk Board of Education

In Norfolk, our model for outcomes-based learning has come from the classroom and from teachers. It has gone through at least four revisions and will continue to be modified and adapted in our process of ongoing feedback. The *Norfolk Unit Planners for Formative Years and Transitions Years* are the most recent version for outcomes planning in our Board. These templates, as you will notice, are concise, flexible for all learning situations, and adaptable to a variety of curriculum orientations.

The process originated from a request by a school to help teachers implement the new Ontario provincial policy document, *The Common Curriculum*. After four workshops, it became quite evident that the normal implementation process, using the adult learning model and building on what teachers already knew, would not suffice.

The following school year, a process for in-service began to take form. We expected an entire school or division to be part of four one-hour in-service sessions. The request for in-service had to originate from the school. Each work-

shop would examine a significant component of *The Common Curriculum*.

The first workshop introduced the Ten Essential Outcomes of *The Common Curriculum* on a template (see Figure 1). This listed the outcomes in a checklist format.

One teacher shared a topic or unit that had been taught, and the workshop leader modelled the process of identifying which

of the ten essential outcomes had been addressed during the course of that unit. Everyone else, in small groups, then repeated the process. Some sharing was done. Next, we examined the key beliefs from the Principles of Learning in *The Common Curriculum*. Teachers matched what they were doing to the appropriate principles. This initial workshop established two frames of reference: (1) matching current classroom practice with *The Common Curriculum* and (2) identifying gaps evident in their teaching, based on these principles.

The second workshop focussed on outcomes. This included a number of definitions, background rationale, and the component parts of an outcome. Again,

Figure 1 Introducing the Ten Essential Outcomes

LONG RANGE PLANNING - THE 10 ESSENTIAL LEARNING OUTCOMES						
The ten outcomes are considered essential for all students. By the end of Grade 9, students will:						
• communicate effectively;						
• solve problems and make responsible decisions using critical and creative thinking;						
• use technology effectively;						
• demonstrate an understanding of the world as a set of related systems; (System - ecological, social or economic unit)						
• apply the skills needed to work and get along with other people;						
• participate as responsible citizens in the life of the local, national, and global communities;						
• explore educational and career opportunities;						
• apply aesthetic judgement in everyday life;						
• make wise and safe choices for healthy living;						
• use the skills of learning to learn more effectively.						
The Common Curriculum						

OUTCOMES/QUEST/EA-OUT

the writing of an outcome was modelled using a simple organizer (see Figure 2).

Teachers were also given a variety of verb lists that were action-oriented and performance-based to use as reference. Relevant outcomes were written collaboratively.

The third workshop focussed on Performance Indicators — that is, what performances or activities did the student have to demonstrate or complete to meet the overall outcome. Again, the definition and criteria were shared and modelled. Teachers were encouraged to begin with a strong, performance-based verb, include the knowledge or competency required, and ensure that the students understood the language used as well as the expectation. Indicators were developed for the original outcome written during the previous workshop. The concept of Performance Criteria (Rubrics) was also introduced at this time. Teachers examined their original overall

Figure 2 Focussing on Outcomes

Topic/Theme_____		
Brainstorm for each heading:		
Skills	Knowledge	Values
...		
...		
...		
Overall Outcome:		

outcome and considered how to judge students' success in achieving it. Models, examples, and samples were used. Performance criteria still needed to be addressed in greater detail.

The fourth workshop focussed on assessment and evaluation, especially

portfolios, as tools for gathering information about students' level of success in achieving the overall outcome.

We knew we had only made a small start, but this set the stage for piecing together a planning format to help teachers meaningfully integrate the outcomes of *The Common Curriculum*.

The *Norfolk Program Planner* is based on a few basic concepts. It is flexible and can adapt to any learning context, any type of Ministry or Board Policy or procedure, and can be used for all age groups.

The *Planner* stresses life learning and therefore accommodates integration naturally. It respects the integrity of the teacher-student relationship, inviting collaboration in developing the indicators for success and the criteria for assessment. Finally, the *Norfolk Planner* respects the complexity and changing nature of education by addressing significant aspects of learning through mul-

Figure 3 Grades 4, 5, 6 Unit on Food

Norfolk Program Planner Formative Years	
Broad Theme/Real Life Problem: Food - grade 4, 5, 6 - developed by Paula Rasokas - South P.S. (Norfolk Board of Education)	
Overall Outcome: includes skill(s), knowledge and value(s) The students will plan and prepare a lunch menu within a budget which encompasses all four (4) food groups and identify the nutrients provided by each food.	
SPECIFIC OUTCOMES	PERFORMANCE INDICATORS
What do we expect students to know, do and value in specific subject areas? Mathematics 1. Students will compare the pricing of products compared to the volume of mass to improve their purchasing power.	What must the students do to achieve the specific outcomes? 1. Recognizes the need and use for multiplying and dividing. 2. Determines unit pricing for a number of foods. 3. Explains relative size of volume measures.

Performance Criteria				
How well does the student meet the Specific Outcomes?				
Specific Outcomes	Range of Performance			
	Level 1	Level 2	Level 3	Level 4
1. Compare the pricing of products to the volume	x and ÷ with concrete materials and assistance	Needs individual assistance to identify and perform operation to be used	Minimal support needed to identify and perform x and ÷ problems	Completely independent problem solving requiring use of x and ÷
	Completely bewildered by concept of volume	Requires assistance to identify various volume amounts	Minimal support needed to identify volume amounts and relative values	Completely independent skills in measuring specific quantities and company amounts

multiple intelligences, thinking skills, social skills, and computer literacy.

Since space does not permit a thorough explanation of our model, a brief synopsis of each major component will be highlighted.

Putting Outcomes Into Action: Using the Planner

Since the model itself is quite lifeless without the content, included is a partially completed template for a Grade 4, 5, 6 unit on "Food" (Figure 3). Readers will want to refer to this figure.

As teachers collaboratively design and plan their programs, they first consider the grade level and needs of their students. A broad theme, issue, or real-life problem is identified and pertinent knowledge, skills, and values are listed. An overall outcome is written which contains a power verb, content, and a context.

Based on program areas, subjects, and/or disciplines, three or four related specific outcomes are written. For each specific outcome, two to four performance indicators are articulated, each beginning with a verb. These demonstrate how success will be recognized in achievement of the outcomes.

To judge the *degree* of success of achieving each specific outcome, performance criteria (rubrics) are identified for four levels of performance.

The Common Curriculum is referenced next to indicate the content connections to its four program areas. It is interesting to note that, as teachers work through this phase, they notice that all four program areas are addressed, even if that was not their original intent.

Many varied assessment/evaluation strategies are listed so that teachers may check off the ones they intend to use. The list was generated both to facilitate

this crucial section for ease in planning and to remind teachers of the wide range to be considered. How will the outcome be demonstrated in action? Teachers consider a performance demonstration, culminating activity, or celebration of learning.

Teachers can check off learning/teaching strategies to use and also consider the range of whole group, small group, and individual activities. The same checking focus is set up for addressing multiple intelligences, social skills, thinking skills, and computer skills. A section is also included for program modification, with reference to both extension/enrichment and remediation.

From this process, teachers can plan daily lessons based on their design. As we work at our second year of implementation, we are constantly revising the planner, from new understandings gained ourselves and from input from our teachers.

Performance Demonstration of Overall Outcome		
1. Having lunch together using the menu planned and prepared by students. 2. Present stories, body projects and math activities		
The Arts	Content Connections (integration)	Language
1. Technology - Build a store front 2. Art-giant sandwiches, food prints 3. Physical Education fitness activities 4. Morals and Values - value of a healthy lifestyle 5. Choral reading, charts etc. drama		
Mathematics; Science & Technology		Personal & Social Studies
Assessment/Evaluation Strategies		
☐ Anecdotal Comments ☐ Observational Checklists ☒ Reflection Journal ☐ Presentations Other: _____	☐ Conferences with Students ☒ Tracking Sheets ☐ Portfolios ☐ Quizzes	☒ Projects ☐ Self Evaluation ☐ Peer Evaluation

Resources (print, non-print, human)	
1. Curriculum Kit from Norfolk Board of Education 2. Picture books and related novels 3. Personnel from Heart Health organization 4. Library reference materials - C.D. Rom 5. Technology materials 6. Delisle resource "The Quest for Calcium" 7. Milk Marketing Board materials 8. Trip to grocery store	
10. How will the unit/theme/topic be presented/developed? (varied)	
A. LEARNING/TEACHING STRATEGIES ☒ Formal lessons ☒ Individual/small group lessons ☒ Co-operative small group learning ☐ Independent learning ☐ Guest speaker ☐ Field trip ☐ Simulation ☒ Demonstration ☒ Role-playing ☐ Other: _____	B. ADDRESSING MULTIPLE INTELLIGENCES ☒ Logical/Mathematical ☒ Visual/Spatial ☒ Body/Kinesthetic ☐ Musical/Rhythm ☒ Verbal/Linguistic ☐ Interpersonal ☐ Intrapersonal
C. ADDRESSING SOCIAL SKILLS ☒ Encouraging ☒ Active listening ☒ Clarifying ☐ Extending ideas ☐ Disagree appropriately ☒ Asking for help ☐ Take turns ☐ Consensus seeking ☐ Other: _____	D. THINKING SKILLS ☒ Concept formation ☐ Brain Storming ☐ Analyzing ☒ Problem Solving ☐ Evaluation ☐ Inferring ☒ Hypothesizing ☒ Sequencing ☐ Other: _____
E. COMPUTER SKILLS ☐ Basics ☐ Keyboarding ☐ Word processing ☐ Database ☐ Spreadsheet ☒ Graphics ☐ Telecommunications ☐ Other: _____	F. PROGRAM MODIFICATIONS ☒ Extension/Enrichment <i>design and build a store-front</i> ☒ Remediation <i>extended manipulatives' use</i>
Note: Curriculum Supervisors are available to assist teachers with their planning and delivery strategies NBE	

Practical Help for Integrating the Curriculum

Key Readings in Brief

BEV HASKINS

Teacher, Lincoln County Board of Education

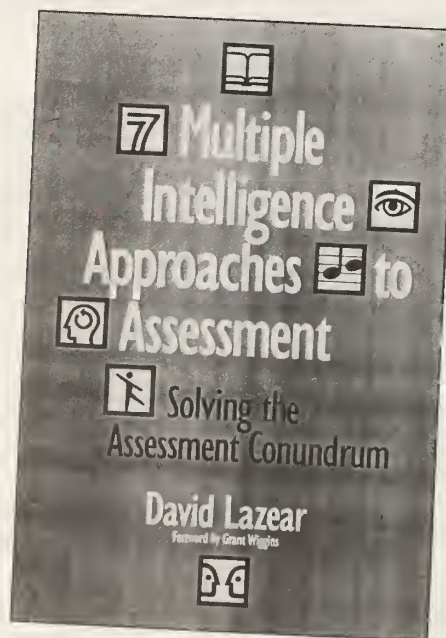
We are in the midst of a vast cycle of change in education in the province of Ontario. The change encompasses almost all areas of teaching and learning, from how we structure our curriculum to how we assess and evaluate our students. Central to most of these changes is the need to examine how all the pieces fit together, to work towards an integrated holistic approach to teaching and learning. The following reviews briefly outline the contents of some practical guides that can help teachers put these pieces together.

Seven Ways of Knowing: Teaching for Multiple Intelligences by David Lazear (1990), Skylight Publishing. This book surveys research on the theory of multiple intelligences and its relevance for teachers. It gives practical strategies for awakening the full spectrum of intelligences and techniques for developing and nurturing them. The main body of the book focusses on each of the intelligences in turn, giving background information, exercises, sample lessons, and ideas for transferring skills into real-life contexts. At the end of each chapter are sample evaluation sheets for the students to complete, to help them analyse how they cope with each intelligence and form plans for working with and improving each intelligence. The practical ideas in the book are adaptable from the junior level on up to secondary.

Lazear's second book **Seven Ways of Teaching: The Artistry of Teaching with Multiple Intelligences** (1991), also by Skylight, is an excellent companion to the first book. In this book Lazear outlines lessons that draw upon the multiple intelligences. Both books focus on teaching

about the intelligences as well as teaching with the intelligences.

Multiple Intelligence Approaches to Assessment: Solving the Assessment Conundrum by David Lazear (1994), Zephyr Press. Following on the heels of the former two books, Lazear wrote this one in response to teachers' largest concern about a multiple intelligences approach to teaching — "How do you assess this kind of learning?" The practical approaches to assessment strategies in this book grow out of Lazear's work on teaching for, with, and



about multiple intelligences. The book provides extensive lists of different program-area assessment products on each intelligence and lays out criteria for basic, complex, and coherent levels of achievement in each intelligence. There are solid examples of student assessment sheets as well as ways of reporting learning based on a multiple intelligence approach. Suitable for all grade levels.

How to Assess Authentic Learning by Kay Burke (1994), Skylight Publishing. Authen-

tic assessment, according to Burke, encompasses meaningful tasks, positive interaction between teachers and students, methods that emphasize higher-order thinking skills, and strategies that allow students to plan, monitor, and evaluate their own learning. Authentic learning is also about helping students to apply and transfer specific skills to real-life situations. Burke's book helps teachers to understand what is involved in each of these ideas and also provides practical samples of assessment tools and strategies for many different forms of assessment, such as portfolios, projects, performances and exhibitions, journals and logs, observation checklists, interviews and conferences, graphic organizers and tests. Suitable for all grade levels.

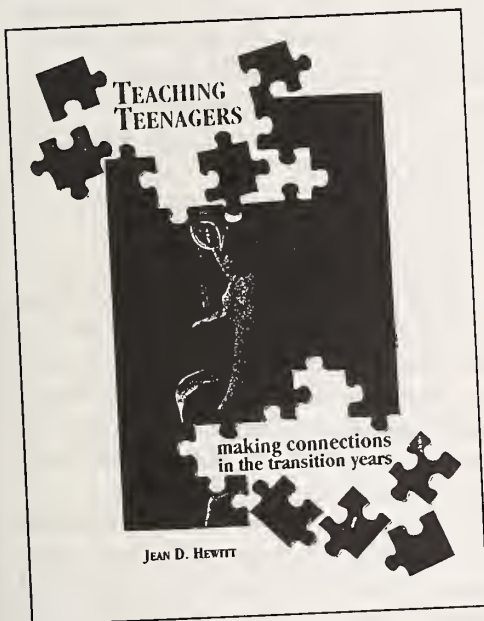
The Portfolio Connection by Kay Burke, Robin Fogarty, and Susan Belgrad (1994), Skylight Publishing. This book explores the multitude of portfolio types as well as practical ideas for implementing them in the classroom. Ten steps in developing portfolios are presented. Each chapter provides lesson options, examples, and suggestions for encouraging critical and creative thinking in an easy-to-follow format that follows the ten steps. This book helps teachers vary teaching styles to accommodate all learners of all styles and ability levels. Suitable for all grades.

How to Integrate the Curricula by Robin Fogarty (1991), Skylight Publishing. This practical book helps teachers at all grade levels see how they can diminish the barriers between different subjects and provides a spectrum of approaches to integrate curriculum. Ten models of delivering curriculum are presented, from the traditional fragmented method to the complex networked model. As Fogarty presents each model, she includes a diagram of what the model looks like. She discusses the advantages and disadvantages of each model and provides a blank form for teacher planning.

Cooperative Learning: Where Heart Meets Mind by Barrie Bennett, Carol Bennett, and Laurie Stevahn (1991), Educational Connections. The purpose of this book is to involve educators in critical inquiry, personal reflection, and discussion about the concepts underlying co-operative strategies and effective classroom applications. The book is clearly laid out and

provides step-by-step accounts of how to build a co-operative atmosphere in the classroom. Part I of the book considers co-operative learning as a strategy within the framework of other effective classroom practices. Part II deals with student interactive patterns and how to facilitate co-operative groups. Part III presents practical ideas for getting started, sample lessons, and activities for continued growth with co-operative learning.

Teaching Teenagers: Making Connections in the Transition Years by Jean Hewitt (1994), Willsdowne Press. The three main sections to this book — Foundations for School Change, The Program in the Transition Years, and Making a Start — build upon one another. The information is meaningful and relevant for teachers who are working on the front-line with teenagers in the Transition Years. The book is about making connections and finding strategies to fit all of the pieces together and deals with such topics as the image of the learner, outcomes-based curriculum, teaching strategies, and quality assessment indicators. The book is also



about teachers themselves. In order to bring about the kinds of changes needed, Hewitt believes that teachers must first assess their own assumptions and the ways in which they work and she provides several questionnaires for self-assessment.

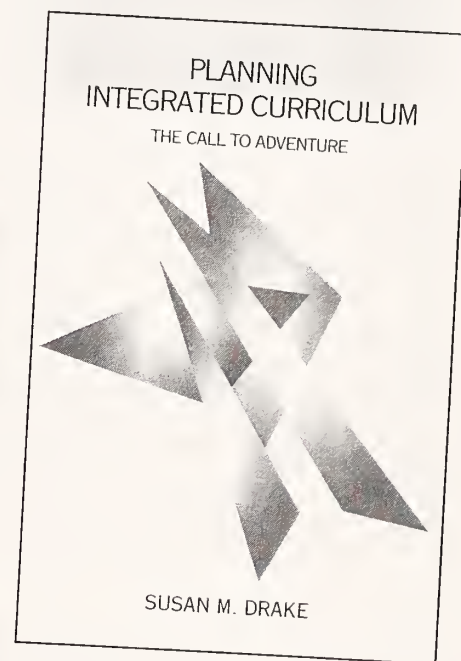
Dissolving the Boundaries: Planning for Curriculum Integration in Middle and Secondary Schools by Rebecca Crawford

Burns (1995), *Appalachia Educational Laboratory*. This book provides a practical look at assisting middle schools (Transition Years) and secondary schools with decision making regarding curriculum integration. Section I: Understanding Curriculum Integration presents a rationale for integration and a continuum of models. Section II: Assessing Your Readiness for Curriculum Integration discusses the conditions of a school environment that are conducive to integration and helps teachers to assess where their school is currently and make plans to move forward. Section III: Preparing Teams for Curriculum Integration is for those who are ready to begin the journey towards integration; it provides a step-by-step "game plan" for the school. The final section in the book is a Facilitator's Guide that provides excellent support materials for anyone responsible for taking a staff through the process outlined in the first three sections of the book.

Patterns for Thinking: Patterns for Transfer by Robin Fogarty and James Bellanca (1993), Skylight Publishing. There are many excellent books on the market today on teaching thinking skills (see also *Teach Them Thinking; Catch Them Thinking; and Keep Them Thinking* by Bellanca), and this book is one of the most comprehensive. The goal of this book is to help teachers promote thinking in all areas of the curriculum. This comprehensive (K-12) thinking-skills curriculum cites both critical and creative skills as essential learning strategies. Using these strategies will shift classroom emphasis from a content/product orientation to one of problem-solving. Practical ideas are integrated with the principles of motivation, reinforcement, and transfer. Instructions are explicit, with modelling, practice, feedback, and transfer integrated within each lesson design.

Planning Integrated Curriculum: The Call to Adventure by Susan M. Drake (1993), *Association for Supervision and Curriculum Development*. In this book, Drake presents a "Keep it Simple Strategy" (KISS) five-step model that provides practical help in dissolving the boundaries that divide traditional subject disciplines and moving towards an outcomes-based skills approach. The model involves working with three major outcomes and identifying the skills embedded in each before con-

necting the outcomes to any content. This model is appropriate for short-term components of the curriculum as well as long-term project planning. Drake also gives some practical advice on how to overcome resistance among staff members who are having difficulty adjusting to an integrated curriculum approach. The book also deals with how to establish assessment standards for the outcomes that have



been chosen. (For further ideas on integrated studies see also: Drake et al., *Developing an Integrated Curriculum Using the Story Model* [1992 OISE Press] and Miller, Cassie, and Drake, *Holistic Learning: A Teacher's Guide to Integrated Studies* [1992 OISE Press].)

A Practical Guide to Alternative Assessment by Joan Herman, Pam Aschbacher, and Lynn Winters (1992), *Association for Supervision and Curriculum Development*. This practical guide for kindergarten to Grade 12 explains a step-by-step process that helps teachers to identify what they want students to know and be able to do (outcomes-based learning) and then to create tasks that require students to demonstrate their skills and knowledge. The book also helps teachers understand how to do performance assessment systematically and objectively and how to communicate the results to students and parents. Included are examples of assessment tasks, scoring criteria, and rating procedures that will help with planning alternative assessment strategies in any subject.

Integrated Learning for Young Children

“We all shared a philosophy of the importance of a holistic and arts-based approach to education. Each teacher brought a particular area of expertise.”

—Marni Binder

Holistic Education

Young Children Making Connections

MARNI BINDER

Senior Kindergarten/Grade 1 Teacher
Lord Dufferin Public School
Toronto Board of Education

Connections are made slowly, sometimes they grow underground,
You cannot always tell by looking what is happening.
More than half a tree is spread out in the soil under your feet.
Penetrate quietly as the earthworm that blows no trumpet.
Fight persistently as the creeper that brings down the tree.
Spread like the squash plant that overruns the garden.
Gnaw in the dark and use the sun to make sugar.

—Marge Percy
“The Seven Pentacles”

In the spring of 1995, five teachers at my school collaborated on a focus entitled “Trees/Plants/The Urban Forest.” We all shared a philosophy of the importance of a holistic and arts-based approach to education. Each teacher brought a particular area of expertise. The grade levels included a junior kindergarten class, two senior kindergarten/Grade 1 classes, a Grade 1/2, and a Grade 2/3. The students, from an inner city school in downtown Toronto, are eager learners. There is a demand to address social/emotional issues on a regular basis.

After a lengthy brainstorming session, an integrated framework of activities was developed, covering all areas of the curriculum. Some of the activities included each of us working within the different classrooms; others involved the children working together in other classrooms, and others were individual activities.

The Toronto Board of Education’s *A Curriculum For All Students* provided performance indicators collectively applicable to all the grade levels and documented what would be learned in each of the four

main learning areas (the Arts; Personal and Social Studies; Mathematics, Science, and Technology; and Language). Benchmarks were chosen and adapted to the individual grade levels. As a required task, the *Toronto Board of Education Classroom Planning Guide* was used to arrange the framework, performance indicators, benchmarks, assessment and evaluation, and the connections (see Figure 1).

The focus was scheduled for a two-and-a-half month period. Timelines were set for specific group activities. Dates for future planning meetings were established.

The Knowing

Susan Drake’s “Story Model” (1993) was the basis for my approach to the focus. A visualization, adapted from *Vanishing Rainforest: Teacher’s Manual* (Lieberman & Hardie, 1984) was used as an introduction. The visualization took the children to a forest where the encounter required use of all of their senses. After the visualization, we discussed and charted the experience.

The story model stresses the importance of past, present, and future stories. Everybody has stories; stories are an important part of who we are. The children were asked: What is a story? Once defined in terms that they could relate to, personal “past stories” about trees, being in a forest, and so on were shared.

The “present story” is about trees and plants in the urban setting. The group discussed what is happening to trees and plants in the city, where there are forests in the city, and what wildlife lives in the city. The question was asked: Does the wildlife need trees and plants? It was important for the children to understand that a tree was a complete support system for all sorts of different animals. When trees are cut down, it is not just the trees that are lost. All tree-life disappears too. What are the implications for people?

The children were asked what they knew about trees. A list of 20 questions was generated on what they wanted to

learn about trees. These questions were sorted into subject categories around trigger words such as the environment and the global view. Explanations for terms were given to the children. The children were at a young grade level, but this approach — that is, coming up with a list of what was known and what was to be learned — was a process that had been used all year. Doing this focus in the spring enabled the children to grasp

trees,” and “how trees get their food.” All the groups decided to use large chart paper to illustrate their projects.

The senior kindergarten children made a forest mural out of a variety of materials. My educational assistant met with this group. The children had to decide what went into the mural — animals, birds, plants. They learned that depending on the type of forest, certain animals and plant life lived there. They looked in

ing the maple tree viewed outside of the room. A visualization from *Earth Child: Games, Stories, Activities, Experiments and Ideas About Living Lightly on Planet Earth* (Sheehan & Wardner, 1994) took the children through the process of becoming a tree. The children went outside to look at and touch the tree. They had to draw and write what they, as the tree, saw. It resulted in some of the most imaginative work they had done. The pictures and stories were put together in the form of a large book.

A further connection was made when the children were asked what the similarities and differences were between trees/plants and people. They began to make the connection that they too were a part of nature.

The children’s attention spans were remarkable. They worked on this focus for two-and-a-half months. It was important, though, to pace the activities to maintain their interest. Trips and special events were spread out. This further enhanced their ability to make connections between all their learning.

A Celebration

Half way through the focus, there was a curriculum evening. Four of the teachers involved in the focus planned this together. It was held from 4:00 to 5:30, to accommodate the majority of our parents. *A Curriculum For All Students*, the completed benchmarks, and the Board’s planning guide were presented.

The planning guide was put on a large board in the hall between our rooms. Work samples were placed beside the specific learning areas. Some of these were benchmark activities. The hallway was filled with the children’s work and photos of the children working together. It was a real celebration of the children’s accomplishments.

A 10 to 15 minute presentation was given to explain the planning guide and the benchmarks; “special” emphasis was put on the integration and connections their children were making throughout all the individual subject areas. Listed were our methods of evaluation and assessment (benchmarks, checklists, anecdotal notes, and of course the children’s work).

The parents went to their child’s classroom to do an activity with them. They

Figure 1 Teacher’s Notes Using the Toronto Board’s Planning Guide

Topics/Themes/Connections	Expanded Opportunities (for all students)
Focus: Trees / Plants / Urban Forest Connections between Curriculum Areas (examples) - Research projects — self and society, math/science, language, visual arts - Record Seed Planting and Seed Growth / language, self + society, math/science, visual arts - drawing plants — visual arts, language, science - estimating seed growth — math/science, language - planting — science, language, self and society - batik leaves — art, language, self and society, math/science	- working with B classes and teachers. - field trips — Sugar Bush (Koltwright Conservation Centre) - Allen Gardens - Riverdale Farm (neighbourhood) - Colburne Lodge — High Park - drama/poetry — David Booth (linked to language benchmark) - storytelling and native art — Brian Marion - Garden Project — Lord Dufferin school project - Tree planting Assessment/Evaluation - children’s work - benchmarks - observations - anecdotal notes - checklists

more difficult concepts as their abilities had matured over the year.

These discussions took place over the course of a few days, with sessions lasting as long as 45 minutes. It was at this point that the focus on trees and plants took on the form of actual work for the children.

The “Doing”

Five of the Grade 1 children worked on research projects with the library teacher. This was part of the “Partners in Action” program. The children chose what they wanted to research and made small books of their study.

I worked with the other six Grade 1’s. They chose their own partner, decided what they wanted to research, and determined how they were going to show their projects. The three topics were: “how trees grow,” “why flowers grow on

books and through discussion, the children came up with what they wanted to make for the mural.

While the research and mural were going on, the batik leaves got started with one teacher. Bean planting took place with another teacher. Stories were read. Movies on the focus and related environmental issues were shown weekly. The music teacher taught tree and environmental songs in her program. Everyone was engaged and busy.

There were two activities I found particularly reflective of the ability of these children to make connections in a real context. *Nature in the Home*, by David Suzuki, was read. The homework assignment was to find six things that come from nature in their home. Most of the children returned the work for sharing. Their recall abilities were excellent and there were a few new ideas presented.

The second activity involved becoming

were encouraged to visit the other classrooms to see the developmental process from one grade to the next, through the work shown. Interpreters were available to help with explanations and questions.

The children were very excited. The parents had a wonderful time. There was a strong sense of community.

The Being/Making Connections

The approach to this focus allowed the children to make personal connections. They discovered an area of study that they were interested in. They uncovered what is meaningful to them in terms of self-directed learning. Their abilities were enhanced. They acquired a sense of what it means to be a community of learners and where they fit into this individually. They developed a sense of "being."

There was a great deal of co-operative work in small groups and in pairs. Sharing the completed work generated appreciation of individual accomplishments, as well as group ones. Confidence was built through presentations. Many of the social difficulties disappeared through developing a sense of community in the classroom.

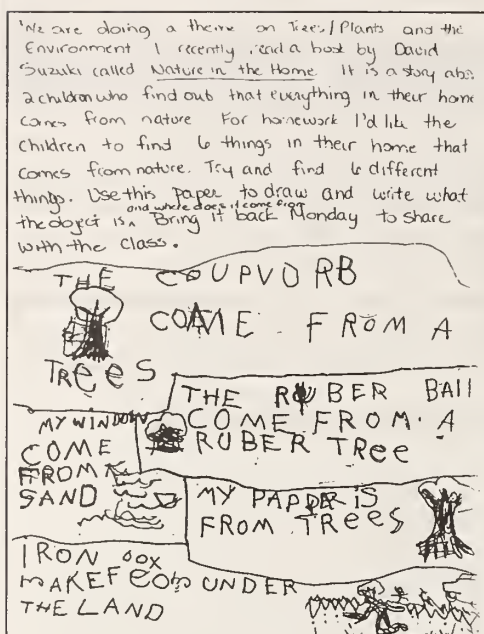
The "future story" was explored through group discussion. The children made predictions and talked about what could be done now to prevent serious problems in the future. This demonstrated reflection on the part of many of the children. For some, this concept was a bit difficult, but it was important to introduce them to the ideas. The children self-generated much of the discussion. There was not as much repetition of what others said as is common with this age group. Their growth was observable.

Discussions were also ongoing between the teachers involved in this project. Ideas, frustrations, and successes were shared; support was ongoing. The children became acquainted with all of the adults involved. They learned to relate to a variety of adults in many different learning situations.

This undertaking reinforced my conviction that young children can be self-directed learners, who are capable of negotiating their own learning. A true holistic philosophy transforms the integrative framework into a creative and challenging context for children to determine what is meaningful for them.

This endeavour enabled me to transform an integrated learning approach and

Figure 2 Integrated Learning Exercise



still fulfil Board requirements. It helped to work with colleagues who were committed to a shared philosophy of education, but the process can be started at an individual level. This process requires changing one's previously conceived views of what integration means. It means accepting change within yourself.

Thomas Berry (1988) states: "Education must be a pervasive life experience. Yet formal education must be transformed so that it can provide an integrating context for the total life functioning" (p. 96). Education as a "pervasive life experience" must occur first for the educator, in order to impart knowledge to create a learning environment that allows the students to make connections to their world in a creative, empowering, and non-threatening way. This transformation has provided excitement and meaning in my work.

REFERENCES

- Berry, T. (1988). *The dream of the earth*. San Francisco: Sierra.
- Drake, S. M. (1992). *Developing an integrated curriculum using the story model*. Toronto: OISE Press.
- Leiberman, G. M., & Hardieh, C. (1984). *Vanishing rainforest: Teacher's manual*. Washington, DC: World Wildlife Fund.
- Sheehan, K., & Wardner, M. (1994). *Earth child: Games, stories, activities, experiments and ideas about living lightly on planet earth*. Tulsa: Council Oak Books.
- Suzuki, D. (1993). *Nature in the home*. Don Mills: Stoddart.
- Toronto Board of Education. (1994). *A curriculum for all students*. Toronto: Author.

Story of an Itinerant French Teacher

Combining Old and New Methods

TRACEY DOREY

Former Toronto French Teacher
now teaching in Guatemala

A sense of cohesion is often lacking for any specialist teacher, especially at the elementary level. As an itinerant French teacher, I rotated into some seven to ten classrooms, experiencing the fragmentation and disruption of adherence to a rigid timetable rather than the integration and flow that comes out of the best moments of teaching and learning, when time is suspended and creative and

imaginative thought blossoms. Often I was the only specialist to visit the students on a daily basis and sometimes — depending how collaboratively the home-room teacher was prepared to work — I was perceived as an outsider infringing on home turf. Other times I was welcomed in and made to feel very much a member of the home team.

The success I have enjoyed with my students attests to their innate curiosity and love of learning. I believe that it is the *esprit de corps* between the teacher and the students, and between the students themselves, that is the key to successful,

self-directed, group work. Other equally important factors to success are the ingenuity and networking that exist among resourceful teachers and the power of an integrated curriculum model.

Small Group Learning: A Safe Place to Check Out the World

The lack of a common language was, I now realize, a blessing in disguise. My students became ready, willing, and even eager to learn French, as I was compelled to "play" with them using song, dance, mime, puppets, games, art, and drama. The

learning. But by the second or third cycle, much of the initial awkward uncertainty and testing of limits was over. The students were increasingly able to move into self-initiated learning while experiencing the support of their partner or group.

By the end of our first year together, children as young as six were capable of setting up and taking down the activity centres that I carried from class to class. They were able to come together in small groups at different activity centres. With each member of the group taking a turn as "le chef," they would organize the activity, complete it, and clean up, all

tially because the activities were "fun" and partially because the children liked a sense of challenge and were not penalized for making mistakes. They also enjoyed their turn at being group leader and playing the role of the teacher.

These students had become risk takers. They were rewarded for finding their mistakes and correcting their errors rather than for being perfect. In my opinion, the worst thing we do to students is to emphasize perfection. That isn't to say that we shouldn't have high standards and a clear idea about what and how we are going to achieve as a class and as individuals. But an undue emphasis on being right closes down the innate desire to explore that children have and that can be a very stimulating motivator. This is a shame because curiosity and freedom to explore generates a genuine engagement in the thinking and learning process.

By their third consecutive year with me, the students were actually generating their own curriculum. Through choosing an action plan and developing a strategy to accomplish the task at hand, students prepared for the real-life challenges that exist beyond the classroom walls. This development is further enhanced if the students experience the consequences of their choice. Sometimes this entailed "failure" so that a second or third strategy would need to be devised and the process repeated. Students worked through trouble-shooting and grew into ingenious problem-solvers with thorough work habits.



Each taking turns as "le chef."

results were incredible. Without realizing it, I was integrating across the subject areas as well as allowing the individual students to come together into more dynamic, synergistic, small groups.

Teacher-directed learning combined with an interactive cycle of games, songs, cassettes, art, and drama activities enabled the students to move from being passive participants under my control to active participants in both large and small group settings. They became increasingly autonomous and responsible for their own learning and decision making.

Initially there were lots of bumps and glitches as the students adjusted to the freedom of this more open-ended type of

within a 20- or 40-minute time frame! Of course the success of such a process is dependent on the teacher's ability to model the necessary social skills on a daily basis and to devise "bite-size" morsels of learning that are challenging, interesting, and manageable enough to ensure success.

By the second and third years together, my students were able to correct their own written work in a small group setting. This gave them a sense of mastery and control over their work and the learning process. As a result, they took ownership of their learning. There was little or no attempt to cheat by going ahead and copying the answer sheet. This was par-

Keeping Track of What We're Doing

Many young students are not intrinsically motivated by academic excellence. Consequently I initially used external motivators. My students received bonus points for doing their corrections well which they were then able to "trade" for pencils, pens, dictionaries, and erasers from the prize box. This is old-fashioned bribery but with a wonderful result. The students who initially needed the external motivation of a prize worked hard and gained some mastery of concepts. By the end of the learning cycle, most had internalized their sense of success and had the confidence and the motivation to continue in their second-language learning without need for the prize and without the usual fear of "getting a bad mark."

ORBIT

THEME ISSUES FOR 1995

only \$9.75 each (GST incl.)

Bulk Rates Available



Mail Cheque or Money Order to:

ORBIT

P.O. Box 10 Station F
Toronto, ON M4Y 2L4

Phone: (416) 447-8186

Fax: (416) 447-2713

The process I used also provided ongoing revision and review. By the time a quiz was necessary, the students had already seen, heard, played, danced, and drawn the unit's content several times over. They had revised their work in teams of two or four and so had collaboratively worked through problem areas which not only provided excellent preparation for a test but also allowed them to take responsibility for their own progress. Through this process they also learned the value of rereading and revising their work and of articulating strategies to one another.

Students kept an individual tracking sheet in their binders for each unit and cycle of work — an ongoing progress report which let them see where they were and what they needed to do in order to “score” all the points possible. This was often the student's first attempt at time management skills, and over the course of the term, many learned the value of this skill from recording completed activities and “scoring” their own points. The emphasis on tracking sheets and marks was, and still is, philosophically miles removed from my own personal beliefs about evaluation and measurement. But the system as it now stands requires some measure of evaluation, and with more than 200 students daily, I needed a very solid framework for portfolio assessment and individual conferencing.

Tracking sheets are also an excellent means of providing parents with an ongoing progress report of the work being done in French. Space is provided for questions, comments, and any requests for phone interviews or meetings. As a teacher trying to maintain contact with so many homes, I found this approach the most efficient one. (I would have preferred interviews at least once a year with all the parents and guardians but this proved to be an impossibility.)

How My Students Came to Love French

Basically I think of myself as a walking kindergarten classroom without the benefit of an actual site. This is because the key to second-language learning at the elementary level is what I call the “song and dance routine” — a lot of visual/tactile “stuff.” I've observed that young learners need the support and reinforcement provided by these resources in order

to “chunk” the new language into comprehensible blocks. Even older students benefit from accessing the kinetic, tactile, auditory, and visual modes of learning, and this forms a more integrated, whole-brain approach to second-language acquisition.

The devices I use are auditory (rhyming games and songs), tactile (art or physical shapes and symbols that students manipulate on the board or during games), kinetic (word associations through stylized “gestes” — pantomime and drama), and social (working in pairs and small groups). The success that many of my students experienced in becoming self-directed learners made it clear to me that external motivation through an active, hands-on, participatory approach worked well whether the students are 6 or 16.

I also discovered that if language learning is “incidental” to another process — whether drama, art, audio cassette production, or films and games —

I think of myself as
a walking kindergarten
classroom without the
benefit of an actual site.

the students assimilate the language readily and without the laborious process of attempting to memorize word for word. Sequential, lock-step memorization is not how people learn their mother tongue, nor is it the way to motivate children to learn a second language. This fits well the whole language approach which recognizes that the process is as important as the product.

As we move into the 21st century, we are facing an increasingly “smaller” world where the ebb and flow of people, goods, services, and languages is the norm. Students of today must learn the flexibility of group communication and collaboration required for this smaller world. The integrated curriculum, as I experience it, allows for the development of those skills while providing students with a safe place to practise and hone these abilities. Teachers and students together can transform schools through the synergy of imagination and collaboration that is integrated group process.

Transformation of a Grade 2 Classroom

Creating a Fairy Tale Kingdom

MIRA COGHLAN

Former Resource Teacher, Peel Board of Education, on Graduate Study Leave at OISE

Last spring my Grade 2 class at Middlebury Public School embarked on a new curriculum adventure. Through a collaborative effort, they negotiated a fairy tale unit which transformed our classroom into an enchanted kingdom.

Preliminary activities and extensive brainstorming yielded many creative

resenting Jill's — not Jack's — playground. Within hours, the classroom furniture was rearranged, and problem solving became part of the process as students attempted to realize their visions. Co-operative groups of four or five completed sketches, listed required materials, described proposed procedures, shared ideas, and arrived at consensus.

Soon the massive castle walls, built centrally around a puppet theatre modified to form a working drawbridge, stood 2 metres high and 5 metres long! The stone front, realistically represented on mural

Excited at successfully completing the kingdom's structural focal point, the children enthusiastically engaged in creating large, 2 metre, representations of the main characters: King Laugh-A-Lot, Queen Violet, Prince Perfect, Princess Pearl, and Jocko the Court Jester. Soon these fantasy characters came to life through written biographies, individually published fairy-tale books, acrostic poems, riddles, puppet plays, and dramas. The *Fairy Tale Newspaper* kept everyone apprised of the daily happenings within the realm. Feature stories, news, weather, and sports reports provided effective vehicles for vivid imaginations.

The design and creation of class favourite Dinky the Dragon successfully integrated creative problem-solving, mathematics, and art. The enormous chicken wire and papier maché structure provided ample opportunities for the continuing development of measurement skills and the synthesis and application of the student's knowledge of geometric solids. The skeletal foundation was created using cylinders of various sizes. During construction, students noticed that Dinky's countenance suited that of a playful baby rather than the formidable antagonist originally planned. Dinky was thus appointed class mascot!

Griselda, the dreaded witch and rather frightening proprietress of the kingdom's only candy store, was formed by stuffing an adult-sized Halloween costume with newspapers. The creature was propped next to her gingerbread house (à la Hansel and Gretel) where numerous mathematics activities and money problems were undertaken. Creating challenging word problems for use within Griselda's confectionery abode became a favourite activity.

Science activities, undertaken in our "bean patch," were overseen by a towering giant and Jill, who jauntily hung from the massive beanstalk (pantyhose stuffed with newspapers, painted dark green). Students planted beans and recorded and graphed their observations.

This unit provided opportunities for the natural integration of language, art, math, science, technology, and problem solving. The most gratifying aspect of this experience was the realization that the impressive final products, including the class-produced video, were the result of the student's own ideas and collaborative efforts.



Students designed and built "Dinky the Dragon."

ideas and led students to designate areas of the room as sites for the kingdom's various components: Fairy Tale Castle, Magic Forest, Pixie Village, Witch's Candy Store, and a Beanstalk Patch rep-

paper (which students had measured, cut to size, and painted gray with black lines to denote the individual stones) was attached to various pieces of strategically placed furniture and boxes.

Applying a Global Perspective

Spaceship Earth

ANNE ARMSTRONG

Special Education Resource Teacher
Robert Little Public School
Halton Board of Education

In his work, *Action Research for Educational Change*, Elliott stresses that successful curriculum change depends on development of the teachers' capacities for self-analysis and reflection. They must be involved in an ongoing reflection with regard to their day-to-day work in the classroom. The process which my school was embarking upon allowed me the opportunity for research, practice, and reflection.

My principal, Deanna Nodwell, asked me to lead an initiative in integrated curriculum — a two-part project involving the development of an integrated whole-school unit in the fall followed by implementation of new learning in the spring. My principal made it clear that initial planning stages were voluntary and she facilitated learning about integrated curriculum by encouraging teachers to attend

various Halton Board Institutes such as "Integrated Curriculum," "Change," and "Schools for the Year 2000." Together we selected the topic Spaceship Earth which addressed the essential learning outcome from the *Common Curriculum* — namely, that students will participate as responsible citizens in the life of the local, national, and global communities. Teachers divided into division teams: French Immersion teachers planned with their English counterparts, frequently for the first time.

Various models for planning integrated curriculum were used. My Grade 3 team used Susan Drake's transdisciplinary format, the Story Model, to focus on the cow. We focussed on the essential learning outcome: "Pupils will demonstrate a commitment to the protection of the environment and apply a global perspective in both their attitudes and behaviour" (*Common Curriculum*). Using the interdisciplinary web to brainstorm, we put the words *family*, *business*, *environment*, *government*, and *law* around the outside and the word *cow* in the middle. Pupils brainstormed the connections between cow and

each of the trigger words, and then came to see the connection between each group with the next. For example, the ways in which the family uses the cow for food in the form of milk, dairy products, and meat relate directly to business interests not only locally but globally. The exploratory activities which evolved from our brainstorming included visiting the local IGA, tracing the thread from farm to table, and most importantly, beginning to understand the "hamburger connection." Pupils (and teachers) began to see the effect of a child in Acton eating a hamburger on the decreasing availability of land in South America, which is disproportionately used to support cattle grazing. We learned that meat consumption requires five times the amount of grain that would be required if we ate the grain directly. Feeding the grain to cattle, and then eating the animals' meat and milk, uses 40 percent of the world's grain supply. The northern hemisphere's obsession with beef also exacts an environmental toll. Eroded soils, depleted aquifers, water pollution from pesticides and fertilizers, and an increased demand for water to irrigate feed lots are all components of the hamburger connection. Other links were also established: for example, the use of styrofoam in food preparation and the depleted ozone layer, beef consumption and the razing of the rain forest. The holistic nature of Spaceship Earth was emphasized. Students developed a related inquiry question and presented their findings to their class. All students benefited from the work of their peers.

Following the first unit, teams met separately and staff met as a whole. Through the use of questionnaires and subsequent discussions, teachers reflected on their practice. This reflection allowed us to be researchers and practitioners. It validated the findings of teachers in the field. We also took students' needs and interests into account, and several modifications, mostly of a practical nature, were initiated for the second phase in April.

Our culminating event was held during Education Week when, as a school, we celebrated our mutual learning through displays of art, music, video, and writing. The connections between people, teams, languages, and disciplines were apparent. At Robert Little, we achieved our main goal: to institutionalize integrated curriculum, to make it not just an event but part of the way we do things around here.

THE Holistic Curriculum



Revised and Expanded Edition

JOHN P. MILLER

Mail Cheque or Money Order to:

Now available from OISE Press!

The Holistic Curriculum Revised and Expanded Edition

by John P. Miller

"A classic work in holistic education ... that has helped to define the scope of this important movement. This new edition provides additional insights while remaining an exceptionally concise and readable introduction to the principles of holistic education."

—Ron Miller, Founding Editor,
Holistic Education Review

ISBN 0-7744-0431-0/1996/196pp/\$29.50

Scholarly Book Services, Inc.

77 Mowat Avenue, Suite 403,
Toronto, ON M6k 3E3
(416) 533-5490 Fax: (416) 533-5652

Units for the Transition Years

“We decided that we preferred to take ownership of the implementation rather than have it dropped upon us by edict. Through a series of meetings after classes, we created and co-ordinated Transition Years courses of study.”

—Penelope Numbers

Old Crow or Bust

An Exterior and Interior Journey

PENELOPE D. NUMBERS

Head, Social Sciences
Nipigon-Red Rock District High School
Nipigon-Red Rock Board of Education

In October, 1991, all interested teachers of Grades 7, 8, and 9 in our entire school area met to begin the process of integration and destreaming. We decided that we preferred to take ownership of the implementation rather than have it dropped upon us by edict. The original committee consisted of elementary teachers of Grades 7 and 8 from the three public schools, the two parochial schools, the reserve school, and the private denominational school plus those secondary teachers from the District High School who had expressed a desire to become involved. Through a series of meetings after classes, in the evenings, and through lunch hours, we created and co-ordinated Transition Years courses of study based upon Ministry of Education and Training guidelines and the tentative hints and clues suggested by Ministry policy statements and notice sheets.

By September '93, the new system was operational; Grade 9 was destreamed; the meshed courses of study were started in Grades 7 and 8.

Integration was the next area to be tackled: the Grade 9 social sciences, art, French, and English teachers decided to develop a unit upon a theme that would unite topics already included in the curriculum of each of the disciplines — World War II. The unit took three weeks and was a success with both the students and the participating teachers.

However, other than sequential subject material, there was no link to the various elementary panels. At this point, one of the elementary supervisory officers, Judy Milne, approached three of us — David Trembley, Thomas Oldale, and myself — to become a steering committee to establish an integrated project which would mesh all three Transition Years, all curricula, and all disciplines.

Dave, Tom, and I had been co-chairs of the original integration and destreaming committee since its inception. Tom and I planned and taught the integrated World War II unit. We were familiar with the required content for each subject for the three grades and with the teachers who would be putting into action any project that we created. Somehow, Judy found some money for supply teachers. For the first time, we had release time from classroom duties to brainstorm without interruption. After three half-day sessions, we had a framework.

About 15 years before, I had taught a Survival Economics course to at-risk Grade 12 students. In this course, to pique students' interest, we planned a trip from our home-base towns to the Yukon; the students had to calculate costs every step of the way, incidentally learning a great deal of history, science, geography, and mathematics. I found enough of the outline of this project to present the idea to my colleagues, and we had our theme — “Old Crow or Bust: An Exterior and Interior Journey.”

The introduction and overview which follow were given to each teacher along with a suggested working outline for the day-to-day lesson plans. After time for consultation, discussion, and dissection, we achieved consensus on the cross-Canada trip for Transition Years students.

An Introduction

A trip across Canada is designed as an integrated unit for students in the Transition Years. The focus of the materials is intended to meet the learning outcomes specified in the Common Curriculum and to provide students with opportunities for co-operative learning. The approach is thematic: each grade's students should undertake this unit for three weeks for each year of the Transition Years. Accordingly, the materials reflect *an integration of all subjects within the four core areas* — Math, Science, and Technology; Self

and Society; Language; and the Arts.

Specifically, the journey is divided into three components with one to be completed in each of Grades 7, 8, and 9. For reasons of continuity, each component of the trip has been divided arbitrarily according to a common geographic distance of one-third the distance each year. Although some skills will overlap from year to year, the components for each year of the journey will become increasingly more challenging.

Students will carry forward their work from one year to the next. Teachers involved with the project will be responsible for evaluating student work for only the component they are currently teaching and for ensuring the work folders are forwarded to the next year's teacher.

- a list of cities is given: each student may stay in *one* of these urban centres, *once*, each year of the trip, for a maximum of three days — for example, Calgary, for the Stampede
- students may stay for two days at any non-urban site for any four each year — for example, two days in Lake Louise National Park after two days at Dinosaur National Park

Students are actively encouraged to work co-operatively, but each student *must* have a complete copy of the results to carry on to the next grade.

Students will be given scrapbooks, log-entry sheets, and maps.

Preparing for the Trip

We determined through ongoing briefing sessions that some activities and skills should be considered before actually starting the trip; letters had to be written to provincial tourist bureaus, Chambers of Commerce, and Information Canada. Our four towns' libraries and the secondary school librarian got involved at this stage, supplying students with pages of addresses from which they could request information. As responses took up to eight weeks, letter writing became a skills-development exercise for English and keyboarding prior to starting the trip.

At the secondary level, prior to beginning the trip, mathematics class taught or reviewed using percentages, converting percentages to decimals, graphing, determining means and averages, keeping cumulative totals, and reading or interpreting statistical information. Social science concentrated upon symbols, legends, and scales and the geographic terms involved with reading maps. Health and physical education investigated the Canada Health Guidelines for the meals the travellers would plan en route. Classes also investigated regional folk dances for inclusion at the correct locations. Science introduced biomes and biological vocabulary.

Because we wished to start the trip at all three grade levels simultaneously, we arbitrarily placed the Grade 7 students in their home towns, the Grade 8 students at the Manitoba-Saskatchewan border, and the Grade 9 students at Jasper National Park. The project started in the first week of February, 1995. For that year only, all classes, 7 to 9, purchased their vehicles, accessories, and equip-

ment and created a personal packing list including clothing, personal hygiene items, first aid equipment, cooking utensils, pet and pet supplies, recreation supplies, non-perishable foods (staples), and perishables.

The local motor home and recreation vehicle retailers gave the schools boxes of flyers so that we had enough for true comparison shopping. We added one

For that year only, all classes, 7 to 9, purchased their vehicles, accessories, and equipment and created a personal packing list.

Project Overview

A trip across Canada takes students in the Transition Years on a three-year journey across Canada. For each of the three years, students are expected to cover one-third of Canada's vastness:

Grade 7: home base (Dorion, Hurkett, Red Rock, Nipigon, and so on) to the western border of Manitoba

Grade 8: western border of Manitoba to Jasper, Alberta

Grade 9: Jasper, Alberta to Old Crow, Yukon

Students are not expected necessarily to travel on the same route; within the parameters listed below, they have certain choices among possible routes.

- students must totally use up 15 days each "year": they must NOT exceed 200 kilometers per day/nine actual driving days for the 15 days (time for thorough examination!)
- students will assume their departure date, each year, is July 1
- each day must be accompanied by a daily log completed in full detail
- the vehicles in which the students are travelling must be totally self-contained; they may NOT stay in motels or hotels
- students are required to travel overland, using primary roads *only when no other route is physically possible*; side roads, secondary, and tertiary highways, gravel, and bush roads should be selected first. The trip is an exploration voyage, not a race!

stimulus the student really appreciated: no price limit. Most started their internal and external voyages with luxurious motor homes, hauling small pick-up trucks, canoes on the roofs, bicycles and quads hanging from the racks. The "reality check" of pricing was a shock! Other retailers in the region supplied catalogues, sales flyers, and appropriate literature. Everything was priced, taxed, totalled. The students created a summary tally sheet which we incorporated for future years. Then, they packed and drafted scale diagrams of the packing. The final step before leaving home (Gr. 7) or Virden (Gr. 8) or Jasper (Gr. 9) involved planning that year's route. As the result of earlier letters, each provincial tourist branch had supplied boxes of year-old maps. These were spread out all over the floors, walls, and desks as students argued the relative merits of one road over another. Unlike the many alternates in Southern Ontario, in some cases there was only one road, so students were reduced to using the Trans Canada Highway. (In February '96 and February '97, only the Grade 7's will do the purchasing and packing, as the Grade 8's and 9's will be continuing their voyage with the goods and vehicles they purchased in the previous year.)

Lessons on the Road

For every day of the 15-day trip, students were given photocopied daily log sheets.

These were given to the students in a package along with their coil-back scrapbooks, maps, and instruction sheets. Each log sheet provided spaces for a detailed breakdown of the route taken that day; description of the region's land surface, vegetation, wildlife, geographic anomalies, climate — including temperature, precipitation, winds and local features; local urban centres and natural resources developed; a brief point-form history of the area; a post card message to be written in French to a Quebec friend; each day's and a cumulative total calculation, including number of kilometres covered, cost of fuel and maintenance for the vehicle, foods used from staples, perishables bought and miscellaneous goods purchased.

Also, for each day's log, the students must discover one of the five things about the area covered: a song, a photograph or painting, a hero or heroine, a sports figure, and a political figure. Over the period of time covered by the project, all five of these topics would be covered once. The last entry on the daily log invited contemplation, with space for personal reflections as this trip should be an interior as well as exterior journey.

A sample lesson plan for a day in a Grade 7 class might include all or some of the following: an oral presentation of several students' daily logs, an outline overhead map with graphics of the route to date, a bar graph recording temperatures and precipitation data for the nearest centre, a newspaper article describing a small town, a list of instructions for changing a tire, a menu for supper prepared of local products and tied to the Canada Health Guidelines, a sketch of an ethnic costume, a visit to a historic site of the area with a re-enactment or skit of the event, and, of course, the completion of that day's log. For the Grade 8's, each lesson plan is organized similarly but at a more challenging level.

At the secondary school level, the arts teacher incorporated perspective drawing and methods of monochromatic shading with students drawing their rigs "going down the road" and wildlife sketches of animals to be found along the route. The science teacher developed a complete, complex, and very useful series of experiments, maps, and readings upon the three major biomes from Jasper to Old Crow. In social science, the class examined both the history of the area, focussing upon individuals of note, and the geography seen each

day, which was carefully linked to the biology discovered in science; the English teacher presented poems, short stories, legends, and songs about the area or by people whose birthplace the area had been. In physical education, students taught each other the ethnic dances of the region. In French class, the students were excited with a short story about the "Mad Trapper." Throughout all this, the keyboarding teacher helped students prepare their scrapbook pages on their computers.

For each day's log,
the students must discover
one of the five things
about the area covered:
a song, a photograph or
painting, a hero or heroine,
a sports figure, and a
political figure.

The last two days of the allotted time was spent setting up the scrapbooks for display in the lobbies of the schools. Then, the scrapbooks were carefully packed away, along with the support materials, and sent on to the next school or next grade. The teachers involved have had three meetings since May '95, amending, critiquing, and polishing the previous year's efforts. In February '96, we start the second year. The new Grade 7 students

will start their journey with purchasing and packing; the Grade 8 and 9 students will spend one class rereading their efforts from the previous year and pick up at the point from which they left off.

The success of the project has been a direct result of superb administration on the part of the Nipigon-Red Rock District High School principal, Ivan Bakk, who tossed us the ball and then let us run with it, and the enthusiasm and the highly professional skills of our teaching colleagues who were willing to try a novel idea and make it work beyond all expectation.

The lesson plans for all three levels of this venture are available from the Nipigon-Red Rock Board of Education and from the steering committee; there is a minimal fee to cover photocopying expenses. A few notes of warning: to be successful on a system-wide level, all teachers involved must "buy into" the project wholeheartedly, must adjust the initial set-up to each particular school system, and must devote many hours to meetings. But once this necessary drudgery is out of the way, the classroom teacher can watch the students seize the possibility inherent in a project of this scope and, helping each other through cooperative learning, grow in skills and knowledge, particularly about this beautiful, exasperating, and diverse nation.

FOR INFORMATION, CONTACT

Penelope D. Numbers
Head, Social Sciences
Nipigon-Red Rock District High School
Red Rock, Ontario
P0T 2P0

ORBIT READERS TAKE NOTE!

We are preparing an Orbit home page for the World Wide Web. We welcome your input in the creation of this page.

SEND YOUR COMMENTS TO THE EDITOR HEATHER BERKELEY

(hberkeley@oise.on.ca)

The Arts Quest

Integrating Drama, Music, and Visual Arts

JOAN E. STURCH

Head of Art Department, Merritton High School
Lincoln County Board of Education

"I can act. I'm an artist.
I'm musically inclined!"

It was a journey of discovery for 53 Grade 9 students at Merritton High School in St. Catharines, Ontario. They participated in a curriculum-integration experiment, combining the arts components of dramatic arts, visual arts, and music. It was a journey of discovery which began as a quest and culminated as a performance that combined art, music, and drama.

The Planner's Quest

A team of three secondary teachers and two arts co-ordinators from the Lincoln County Board of Education (Jennifer Allen, Annalea Masiello, Darrell Gillespie, Mac Dodge, and myself) took up the Ministry and school administration's challenge of developing a unit to allow students to experience an integration of the arts, rather than the traditional segregated presentation.

When the team first sat down to plan the unit, it became obvious that we all had our own rudimentary notions of how the unit should look. The initial brainstorming session brought out questions such as, What are the goals of this venture? Should there be an end product in the form of a performance? A sharing? Is the process alone all important? Opinions came forth. Some argued it is essential to give each of the arts equal importance, ensuring that visual arts and music don't become appendages to drama. We realized very early on that compromise and consensus would be the real challenges, and if we were still a team by the end, it would be a miracle! After eight months of planning, the unit was a go and we were still on speaking terms with each other.

We agreed upon a major outcome that became our rallying point: "To experience the true integration of the arts to recognize the interrelationship of the arts." Upon examining the Ministry's specific outcomes from *The Common Curriculum*, it became evident that what we had planned for the unit was reflected in a number of the arts outcomes. For example: "Students will be able to explain what the arts have in common" (p. 40); "Students will be able to identify a wide range of skills and personal qualities used in creating and appreciating works of art" (p. 44).

The Quest Story

The arts planning team set the theme for the entire project, and the phoenix became the symbol of the theme: "Out of the Ashes, Cross Cultural Beginnings." The goal of our Grade 9 students was to create a quest story based on an *escape* (departure from something unbearable), a *journey* (encounters with foe and friend,

The goal of our Grade 9 students was to create a quest story based on an *escape*, a *journey*, an *arrival*, and *new beginnings*.

trials and successes), an *arrival* (the celebration of finding a new "utopia"), and *new beginnings* (that part of a story about starting anew).

The process of creating the story, we felt, was the most important part of the unit. However, the arts is ultimately about presentation, be it dramatic, visual, musical, or dance. Therefore, it was agreed upon to present an end product in the form of a performance, incorporating all of the arts studied at our school.

The students embarked on their quest as a unit encompassing 25 class days with 75 minute periods. It became evident as the unit progressed that this was restrictive to the full development of the process. The team all agreed more time would have been ideal.

Introducing Students to the Arts Quest

As an introduction to the project, a three-day session of group dynamics activities occurred. With 20/20 hindsight, we realized that this was a very important component which justified more time than we gave it.

To start, the students watched and discussed a play called "Blush" presented by a regional theatre company. It dealt with alienation/racism/idealism versus realism. The arts team selected it because of its possible ties to teenagers' reasons for "escape." In addition, ours is a multicultural school and with many Grade 9 students from other countries, we thought this might strike a chord with them as well. Group activities continued with a game called PRUI which again dealt with alienation and rejection.

Each student was then given the task of completing a personal totem. (In Native American culture, the totem pole is commemorative or protective in nature, usually portraying wildlife forms, beginning at the bottom with lowly creatures such as a toad and evolving in hierarchy to the noblest creature — the thunderbird.) The creature represented at the top of the student totem was the phoenix. The premise of the totem activity was the statement, "You have learned that the Niagara Region is no longer able to support life and you have to evacuate quickly."

The students answered the following questions to fill in their totem from bottom to top:

1. (At bottom of totem): You only have room in your suitcase for three items; your favourite music, story, and picture. What are they?
2. What three things, from your everyday world, will you miss?
3. What frightens you about the journey that lies ahead?
4. (At top of totem): If you could choose, what would be your ideal destination (utopia)?

Another hierarchical totem was created in groups. This time, the group imagined it had finally arrived at Utopia. The levels of the totem now represented aspects of their new community. Some of these aspects included features such as being located in a semi-tropical zone and in a land without adults telling teens what to do. A fountain of youth figured in one group's utopia, ensuring no one would grow old. There would be no

A fountain of youth figured in one group's utopia, ensuring no one would grow old.

crime, no disease, and everyone would get along. Peace, love, joy, and lots of money were a priority with most groups (at the top of the totem).

During these introductory days as well as throughout the entire process, reflective journal writing became an integral exercise.

Visual Arts, Drama, and Music

The 53 Grade 9 students were divided into three groups, labelled by colour: Red, Yellow, and Blue. The planning team believed that by starting each group in one of the arts, each quest story would evolve from a different arts perspective. For example, the Red group began their story in visual arts and had six class days to create a "visual" quest story. The Yellow group began in dramatic arts and created a written/dramatized story. The Blue group began in music to create a "musical" quest story. After six days, each group rotated to the next arts centre. With them, each group carried their arts "baggage"; that is, their visual, dramatic, or musical story.

It worked like this:

	6 Days	6 Days	6 Days
Red	Visual Arts	Drama	Music
Yellow	Drama	Music	Visual Arts
Blue	Music	Visual Arts	Drama

In Visual Arts, the visual story was created in the form of sets and symbols. The construction of these came about

after studying the elements and principles of design (for example, What is the colour of escape? What is the texture of journey?)

Symbols and symbolism were studied, and a small group within the larger group designed a symbol which changed or transformed through each stage of the story. Installation sculpture and performance art were also studied. The sets for each part of the quest were designed abstractly using risers and long sheets of fabric in primary colours. The sets also comprised projected images onto walls, ceiling, and floor. These slide images were provided by the teacher and showed various scenes — for example, landscapes, cities, battles, disasters, natural phenomena, joyous crowds, and so on.

In the music component, students created the soundscape of escape, journey, arrival, and new beginnings using Latin percussion instruments. The groups learned how to create dynamics, timbre, tempo, tone, and accent with the instruments. The compositional structures of motif and ostinato were experimented with. After establishing the soundscape, the music was composed and recorded using notation.

What is the colour of escape?
What is the texture of journey?

During the dramatic arts component, students were introduced to storytelling/narration. They created a series of tableaux to demonstrate the action of the story they developed, emphasizing level, balance, and focus. Through story theatre, they integrated the narration, action, and character.

Quest Presentation

The three groups spent the remaining time (three days) practising and presenting their three quest stories, employing tableaux, narration, sets, symbols, and soundscape. The performances displayed creative solutions to the quest story. All were different yet all contained some aspects of death,

disease, battles, marriage, otherworldly creatures, and/or objects with special powers. There were heroes and heroines in each, following plots that were fantasy or science fiction. Good triumphed over evil in each story with if not happy, at least "hopeful" endings.

Quest Evaluation

The final presentations were evaluated as well as the journal and any exercises completed in the individual arts. Group participation also counted in the overall evaluation.

Students also were encouraged to evaluate their experiences through a questionnaire. The questionnaire asked questions such as:

- List two things you learned in each of the arts.
- What did you learn about yourself in terms of your creative abilities?
- In your opinion, what is the value of the arts?
- What is the value of storytelling?
- What is the value of adding visual arts to a story?
- What is the value of adding music to a story?
- What did you learn about the "process" of working toward the "goal" (performance)?

On the whole, the data revealed that the project had been enjoyable and worthwhile to the students educationally. The experience was an adventure in self-discovery for some individuals. Many students discovered latent abilities and talents in the arts which encouraged them to pursue other arts courses. They also understood the value of the arts, singly and combined. They appreciated their ability to create, communicate, express, and interpersonally relate.

The integration project invariably became a learning experience for the arts planning team as well. We realized that it is important to ensure adequate facilities are available for large as well as small group interaction. Adequate time is essential for all aspects of the project but in particular, group dynamics and rehearsal time is critical. However, the project met our primary goal: the students showed evidence of understanding the inter-relationship of the arts. It allowed students to be exposed to and participate in each of the arts.

Integration in Preservice

A Conversation with David Booth, Elgin Wolfe, Don Fraser, and Ron Shephard

During last year's program at the Faculty of Education, University of Toronto (FEUT), professors from three different disciplines conducted a pilot project on student planning of an integrated unit. The following conversation by the three colleagues involved — Elgin Wolfe in Science, Don Fraser in Mathematics, and Ron Shephard in English — highlights the discourse on integration in the Grade 9 program.

David Booth, who has pioneered integrated programming in Language Arts, hosted this conversation on *Orbit*'s behalf.

David What did this project entail for students?

Elgin Their assignment was to prepare curriculum materials for a topic which was outcome-based and integrated. We called the project, "Topic: Outcome-Based and Integrated (TOBI)."

David Your assignment, then, attempted to integrate the three areas of the curriculum; the students who took part were from all three disciplines; and their topics covered all three subjects? How many students were on each curriculum team?

Don It varied, but there was at least one from math, one from English, and one from science.

David Why did you decide to do this integrated unit?

Elgin Our Associate Dean, Anne Millar, initiated the project at a meeting of the Intermediate Curriculum instructors. She wanted us to work towards integration because the *Common Curriculum* for Ontario mandates it for Grades 7 and 8 and suggests it for Grade 9.

Don We were asked to suggest with whom we'd like to work, or the other subjects we'd like integrated with ours. That's how this particular trio came together.

Elgin We started with the model we had evolved over several years in science

where we had been integrating math, science, and technology. The print materials that we started with as a team originated in the science program.

David How top heavy was the planning and the meeting times for you three?

Elgin We had one planning meeting which lasted for three or four hours. From there we evolved a format for what we were going to do. First we organized a two-hour session demonstrating integration on the topic of sports. The students rotated through each of our rooms in their TOBI teams. We also organized an hour session where we brought them all together to explain the whole idea of integration.

David How did you correlate the three areas in each of the teams?

Elgin We used a grid to help students consider which activities they were going to try and incorporate for their topic, in science, math, English, and technology. That was the beginning planning grid, and it helped us achieve a kind of a balance.

Ron The students did a great job in integrating the subjects, but I don't think they completed enough English. Still the results were tremendous. We were all impressed with the science component.

Don The math component wasn't as outstanding as the science. They tended to use it as a tool, and the math that they actually covered was not the complete Grade 9 course, whereas the science probably fit into the curriculum.

David Why was science, then, the centre of it?

Ron The discipline of science lends itself, I realize now, beautifully to hands-on activities. In their group presentations, the students' emphasis was on involvement, and they just did some magnificent things. I was in awe of what they were doing. In English, they were doing things that would support the integrated events, writing them up, doing journals, writing

letters, and I don't mean to belittle that. It's just that they did not cover certain outcomes and skills expected for Grade 9.

David Should this then be what we call an adjunct course, which is offered along with specialist subjects?

Don Yes, I feel strongly about that.

Elgin Looking at it from a science point of view, I was happy with what happened. We got students planning around themes (which is not ordinarily done), and I think it was the mix of disciplines that forced them to go in the direction of the theme.

David Did the project have a Grade 9 emphasis?

Don Yes, but I think Grades 7 and 8 might have been a better fit in terms of math.

Ron In English, too. But, as I've said, the presentations were outstanding.

David What made the presentations so outstanding?

Don The students worked very hard, but I also think part of it might be the cross-fertilization among the disciplines. Even in their preparations, the math people learned something from the English people.

Ron The one recurring comment from the students was that they really enjoyed that cross-fertilization, meeting the students and teachers from the other disciplines, and beginning to understand some of the problems in another area.

Elgin They received further integration in what you might call the rest of the program, the Junior/Intermediate component. If you look at the amount of background they were getting to teach a particular subject area, then they lost out. If you think of the integration which probably occurred in the rest of their Junior/Intermediate program, then they gained some valuable experience.

David Was it significant for the three of you to work together?

Ron That was the main benefit of the program for me. I had no idea of the things that students did in science and I enjoyed the collaboration immensely. As a lesson for the Faculty, we shouldn't be petty in our allocation of time. If we did this in

another year, we'd have to double the amount of time, and still allow adequate time to handle the subject disciplines.

David When they formed their groups, did that lead to any difficulties for students or were the groups self-selected?

Elgin We had certain parameters and a main one was location: Could they get together for planning? A concern we all had was that the groups became too large with seven students.



“We need the discipline, the learning ... and we need the involvement and the integrity of working as a whole.”

— David Booth

Ron But it was a reality. We had over 80 students and we couldn't make smaller groups or we'd still be there evaluating presentations!

Don With respect to assessment, there were three staff members observing, and the presentations took place in two rooms, as a mini-conference. I was in one room permanently, Elgin was in the other room permanently, and Ron floated back and forth. Then we met together at the end of the day and shared our observations.

Elgin We also had the student evaluations and we wrote a very thorough analysis of our evaluation. Each group received a summary.

David What was the student feedback?

Ron Some commented that they really liked the project; some said it was the first time they had received both positive and negative criticism, and they found that helpful.

David Were they marked as a group or individually?

Ron They received a group mark.

Elgin We marked the print material as well as the presentations. We had a form that we followed as we individually marked, and then we came together in a meeting and shared our impressions, coming up with ideas as to what would go into the narrative descriptions. We were fairly close to each other's ideas every time. We tried to err on the high side of evaluation because it was a new and demanding experience and we knew that students had put many more hours in for us than they would have in the individual subject areas.

Ron Time and time again, students commented in their journals on the number of hours they had put in outside school time. I hadn't really expected that, because they had an hour each week to work in class, but they spent much more time than that.

Elgin The original intent was that the product would come in in stages, that for example, the grid and the cover (a brainstorming or organization scheme) would come in first, and then we would react and they would give us some lesson plans, followed by the assessment devices.

David Would you replicate the course next year, or would you do it differently?

Ron I found students wanted more input from me on what it was they were to do for the English component of the unit. If we did this again, I would like to do a lot more, to get students to look at reading in science and in math, to study word problems and technical reports.

Don And that might not be built around themes, but it would have to do with integrating the methodologies.

David Or the concepts within the subjects, though the students would probably prefer the themes.

Elgin I would start the course earlier so that over the year students would be doing some work on it. Also, there should be three hours set aside every “in-Faculty day” so that optional activities could be held in the afternoon. A third hour could be devoted to the teamwork that's so necessary.

David What was the Intermediate subject time frame?

Don It was two hours every Wednesday, and then we were given three hours to conduct the project — with the advice not

to use the three hours for separating math, science, or English. It wasn't enough. I think, Elgin, you knew from your past experience certain processes you were after, whereas I wasn't sure, and therefore I left the unit more open. After the experience, probably each of us would tighten it up a little.

Elgin What there needs to be is a skeleton of integration throughout all of our courses. If we think of the example that we carried out — the sports demonstration — the three of us had circles overlapping, but the connections came accidentally. We did not sit down and say, “What are you doing Ron?” “What are you doing Elgin?” “What are you doing Don?” and “Let's make sure there's as much of the overlap in the central part as possible.” We just went along with the theme.

Ron It might be interesting if they did the subject specialty first, as it's normally done, then the second half of the year worked on integration, applying what we had learned.

David I'd like all the Grade 9 secondary students to do these units four times a year. That would be exciting teaching. When my son was in Grade 9 last year, the teachers integrated their work so that everyone explored the Don Valley — the science class, the English class, the geography class.

Elgin That's exactly what we did with the sports theme.

Ron I think part of the problem, too, is when you're talking about true integration in curriculum, there's a degree of sophistication required. A teacher in the field has background that a student teacher may not have yet. It's a very demanding thing to “integrate” and bring in all subject areas for a novice.

Elgin But working against that in the field are teachers who have been so long with their subject area that they don't want to give up anything.

David I'm hearing you say that we need both of the above. We need the discipline, the learning, and the “how to do it,” and we need the integration and the involvement, the integrity of working as a whole. On behalf of *Orbit*, I would like to thank you for sharing your experiences with us.

Integrated Family Studies

Implementing a New Curriculum

JOYCE MCKEAG

Head of Social Science
Midland Avenue Collegiate
Scarborough Board of Education

I was introduced to the concept of integrated curriculum in October, 1994, while enrolled in the holistic education course at OISE. At that time, I was also a member of the Transition Years Committee at Midland Avenue Collegiate in Scarborough. The staff was struggling with the Grade 9 timetable for 1995/96. Our task was to provide a common curriculum for the students which would include all of the subjects traditionally taught in Grade 9. At that time, some subjects were optional, but we now wanted to include all ten subject areas in a timetable designed to accommodate eight. I suggested that family studies be withdrawn from the timetable and be integrated with other subjects. Two other subject areas would share a time slot. I outlined how the plan might work and took the proposal to the department heads' committee at our school. It passed unanimously, with strong support from the administration.

The decision to withdraw family studies from the timetable and create an integrated curriculum provided a very high-risk situation. Family studies was traditionally an optional subject. Students chose two options out of a possible seven courses. Typically, in my school, there were two sections of Grade 9 students, with 110 hours of instruction for each section. There was a guarantee, therefore, that approximately one-third of all the Grade 9 students would be involved in a family studies program. The problem was that two-thirds of the Grade 9's would not take family studies. In withdrawing from the timetable, there was the risk that if few staff bought into the program, the Grade 9 students would experience even less time involved with the family studies curriculum. In addition, there was the concern that the whole course might be assimilated and lost.

In addition, I did not clearly know what an integrated family studies curriculum would look like. Traditionally, as department head, I had control of the learning activities. I chose what would be taught and how the outcomes would be met as well as how the students would be evaluated. In an integrated program, these decisions would no longer be mine alone. Nevertheless, I did have faith that

The pressure was now on me to make the proposed plan actually work. The department heads of five subject areas agreed to become involved.

an integrated program would provide many benefits to the students and that the outcomes could be met in this format.

Having been given permission to proceed with a integrated family studies program, the pressure was now on me to make the proposed plan actually work. The department heads of five subject areas — namely, Canadian studies, physical education, mathematics, French, and science — agreed to become involved. Because the program would ultimately involve teachers other than the department heads, the integration process began with a series of workshops for the whole staff. These were held throughout the year.

A final workshop was held in May to begin the process of curriculum development. The Grade 9 family studies course of study was presented, and the department heads identified connections to their own Grade 9 curriculum outcomes. During the next few weeks, I met individually, for one to two hours, with each department head, and integrated units were outlined. A schedule was devel-

oped which allowed for approximately ten 75-minute periods of class time for each subject area. This would provide approximately 60 hours of integrated time for each Grade 9 student. At the end of June, we celebrated our completed plan with a luncheon.

Implementation began in September, 1995. A family studies/Canadian studies unit integrated history and geography with family studies. The outcomes from the two Canadian studies units — Human Diversity and Canadian Identity in Contemporary Times — were integrated with the family studies outcome "The students will recognize the diversity of families and cultures in the community." The first lessons focussed on the interrelationship of the individual, family, and society. Students recognized the ways in which their own actions affected their families and, ultimately, society. They also looked at the impact of societal forces, such as the media, on their families and themselves. Understanding of cultural diversity was quite easy for the students. In our school, there are many students from all parts of the world. In pairs and groups, they identified their differences and similarities in areas such as food, clothing, religion, and holiday customs, to name a few. In the major integrated project which will be completed later in the year, the students will create a newspaper where they will report on the cultural diversity within the school and how it relates to the way in which Canadians define themselves in contemporary times.

The mathematics integrated units will address the family studies outcome "The students will exhibit practical skills for quality family living." The first integrated unit has been completed. It began with the students exploring reasons why gathering statistics on the family is important. They then surveyed their Grade 9 classmates and gathered information about their families. Questions such as "What language does your family speak at home?" were asked. Results were then tabulated and graphed. The two units yet to be taught are calculations of calorie consumption and the family budget.

Looking Good and Feeling Good was theme of the family studies/physical education integrated unit. Lessons addressing the outcome "The students will make responsible choices for personal and family well-being using relevant information" provided students with an opportunity to discuss body image and concerns around

their physical, social, intellectual, emotional, and spiritual development during the adolescent years. The nutritional information presented was reinforced with the preparation of nutritious foods.

In French, students discussed the roles and responsibilities of *la famille*. Two indicators related to the family studies outcome "Model positive interpersonal relationships within the family and with peers" were addressed through the discussions and activities in the food lab. These were "Explain how effective communication assists in the development of positive personal relationships" and "Work cooperatively with others." Students revisited the concept of the diversity of families by sampling French cuisine with the preparation of *crêpes avec sirop d'érable*.

The science units have not yet been implemented. However, we are planning to have the students revisit the topic of nutrition. This time they will chemically identify the nutrients in foods. In the

final unit, students will explore the rights and responsibilities of themselves and their families in caring for the environment. Using this topic, the program will return to the theme of the first unit — the interrelationship of the individual, family, and society. Students will focus on the importance of knowing how, and being able, to care for themselves, their families, and society. In this way they will address the outcome "Demonstrate the contributions of family members to a healthy environment."

Reflecting on the program so far, I believe that there is much both staff and students have learned about integrating the curriculum. The most important factor in the development and implementation of the program has been the collegiality, creativity, and commitment of the staff, along with the support of the administration. In fact, the enthusiasm and support of the staff has been quite energizing.

While implementation on the whole has been fairly smooth, a more effective

approach would have been to integrate initially with only two or three subject areas. Integrating with five areas has produced a great workload for me as Social Science Head. Also, finding time to get together as a group to plan and develop the lessons continues to be a challenge.

Nevertheless, the experience has been very exciting and has provided an opportunity for many staff and students to know what integration "looks like" and "feels like." In addition, the students have responded positively. The majority are achieving the outcomes, recognizing subject connections, and having fun!

In conclusion, the most important things I have learned have been that in implementing a new curriculum, it is important to communicate, reflect on, and revise the course in progress, to work through the emotional upsets associated with disappointments and frustrations encountered along the way, to encourage and support one another and, most important, to persevere!

Global Education

A Model for Destreamed Grade 9 Classes

SANDRA TONDAT

Teacher and Department Head, Special Education, Heydon Park Secondary School
Toronto Board of Education

For a change process to succeed, a supportive environment is essential. At school, teachers need to support each other with respect for individual differences. The principal should be solidly behind new projects, encouraging risk taking and learning from mistakes. Everyone involved should be aware that when educators undergo a temporary performance dip, they are going through the essential steps to new learning (Drake, 1993).

At Heydon Park Secondary School, the task was not easy. Department heads were asked by the principal to discuss with their staff the adoption of an integrated program in Grade 9 and report to

a meeting of the heads three months later. Material was distributed for reading, and release time was given to teachers who wished to observe models of integrated programs at other schools.

At a staff meeting in December 1992, a motion to adopt an integrated program in Grade 9 was discussed by all teaching and support staff in the school. Thirty-eight members voted to adopt the change, seven voted against it, and five abstained.

A Restructuring Committee was struck. It had several subcommittees: Evaluation/Reporting to Parents, Curriculum, Advocacy/Mentoring, and Timetabling. The subcommittees were composed of the Administration, several department heads, and the teachers involved in the Grade 9 program. Meetings were held regularly to address issues and concerns as they arose. When a specific initiative was underway, for example the development of the anecdotal report card, meetings were held weekly, sometimes more often. The teach-

ers of Grade 9 met daily to discuss curriculum. The new initiative was discussed with parents to gain their support and approval.

Organization

All Grade 9 students (approximately 50) were timetabled as a unit. Students were introduced to major themes, took field trips, viewed films and videos, listened to speakers as a large group, and then broke into small groups to work on activities developed from the curriculum issues.

In September 1993, three teachers and one educational assistant delivered an integrated academic curriculum to Grade 9 students in the morning portion of both semesters. While there was no fragmentation by subject area, the program was designed to build skills in literacy, numeracy, communication, and technology through course activities, assignments, and projects. Skills specific to each discipline were taught through the issues raised in each unit.

An advocacy/mentoring program provided an opportunity for students to meet with an advisor (teacher) for 20 minutes, at least three times a week. The program was scheduled as part of the teacher's timetable. During the advisory period,

students engaged in non-academic activities designed to foster a sense of belonging and security, and an awareness of their place within the school community and in society. The program consisted of four units: school orientation, self-esteem, relationships, and decision making.

The Integrated Academic Curriculum

In designing the curriculum, learning outcomes had been developed for each of the program areas. The Committee had adopted the Ten Essential Cross-Curricular Learning Outcomes in the Ministry's *The Common Curriculum*, but felt that the hundreds of outcomes mentioned in other parts of the documents were unclear, difficult, and simply overwhelming. Instead, the committee created outcomes that were significant to the students at Heydon Park Secondary School.

The integrated, student-centred, curriculum was organized from the perspective of global issues of the environment, the development of human societies, peace and conflict, and rights and responsibilities. Underlying these areas, and integrated into each area, were equity and health issues. Five curriculum units were planned around the following topics:

- Tiga (the African foster child that the students of Heydon Park sponsor)
- Our Home and Native Land
- The Olympics (coinciding with the Winter Olympic Games, February, 1994 and replaced later by Challenges related to personal goals, aspirations, and life experiences)
- And Every Other Creature (including life-cycles, animals, environmental issues, plants, endangered species, etc.)
- What About Me? (pertaining to students' places in the community and society as a whole)

Every unit had sections dealing with motivation, issues, and the skills that could be related to the traditional subject disciplines of English, Geography, Mathematics, and Science. Planning these units had taken time and effort. Committee members read books and articles, visited elementary and secondary schools, spoke to consultants and co-ordinators, visited museums and embassies, and corresponded with Olympic medal recipi-

ents. Since the task was demanding, concessional periods were awarded to committee members.

Teaching Strategies

A wide variety of teaching methods, designed to accommodate students' learning styles, were employed throughout the entire Grade 9 program. The following strategies, for example, were employed in the first unit, Tiga: independent study projects, field trips, interviews, journals, videotaping, guest speakers, class projects, role playing, games (Jeopardy, computer programs such as MacGlobe), panels, films, teacher-directed lessons, literature study, hands-on experiments, simulations, community outreach (through experiential learning activities outside the school environment), conferencing, and peer teaching.

Evaluation

An evaluation policy was developed that de-emphasized examinations and tests. Instead, work habits, participation, and attendance became essential. No marks were to be assigned for regular attendance, although it was felt that a student's attendance pattern directly affected achievement. Opportunities to acquire and practise good work habits and team participation skills were offered daily and were evaluated in a variety of ways including personal and teacher checklists and summaries, self and peer evaluation of work habits, self and peer evaluation of team participation skills demonstrated in co-operative group work, teacher-student interviews, and maintenance of personal folders, journals, and notebooks.

There were two interviews of a summative nature, where students, with one or more of their teachers, reviewed their progress and achievement. Students were sometimes asked to prepare a piece of writing summarizing their self-assessment and their comments in advance of the interview. The first interview took place in January and the second in June.

The traditional computer-generated report card was replaced by an anecdotal card. Key performance indicators in each subject area were specified; a section of the report card included teachers' comments on the students' success in achieving them. In addition, checklists noted students' achievements in the domains of work habits and attitude. Even though all

teachers kept marks for students' assignments, projects, and other learning activities, there were no marks indicated on the report card. The comments alone indicated students' performance and achievement.

By June, 1994, all students in Grade 9 had a portfolio of materials to use in their final interview and to assist in the placement of students in Grade 10.

Reflections

The Integrated Academic Program has now been in effect for more than two years. In its first year, 1993/94, there were many reasons for celebration. Although it is difficult to measure the success or failure of a particular program without specific measurable criteria, at the end of the year there was overwhelming evidence suggesting that the program had been a success. The following are a few examples:

- the attendance rate among Grade 9 students improved by 50 percent; compared to other grades in the school, the attendance of Grade 9 students was noticeably better
- Grade 9 students organized and took part in a trip to the Boyne River Natural Science School, organized a food drive, performed in dramatic arts shows and in several assemblies
- Grade 9 students formed the majority of players on athletic teams; many others participated in clubs (82% of the total population in Grade 9)
- students from Grade 9 formed the PA club and used the public announcement system to address the school daily
- discipline referrals in Grade 9 decreased by approximately 50 percent judging by the average of the last three years before the program was introduced
- in 1994/95, as the Grade 9 students of the previous year reached Grade 10, their science and English teachers praised the students' work habits, organizational skills, group skills, desire to learn, and knowledge

REFERENCE

- Drake, S. M. (1993). *Planning integrated curriculum: The call to adventure*. Alexandria, VA: The Association for Supervision and Curriculum Development.

Voices in the New Story

“The concept of integration is something that we all endorse and embrace, including the integration of exceptional children into the regular classroom and the integration of parents into the system.”

—Barry Finlay

Embracing Integrated Learning

A Conversation with Susan Drake, Kaye Egan, and Barry Finlay

In January of this year, Guest Editor Susan Drake held a teleconference with the principals of two new Ontario high schools who have made a commitment to integrated learning as a featured part of their curriculum and program. Kaye Egan is Principal of Sinclair Secondary School in Whitby (Durham Board of Education) and Barry Finlay is Principal of Iroquois Ridge High School in Oakville (Halton Board of Education).

Susan As principals of two new high schools in this province, I know you both have had opportunities to explore integrated learning. Perhaps you could give us a little background on your schools.

Barry Because Iroquois Ridge was created as a community school, parents and members of the community are more involved than they have traditionally been in high schools. Our school actually began with a school advisory council that refined the mission statement and goals and created outcomes for our graduates. The council's primary role is to assess our effectiveness, and to do so, it assesses the achievement level of our kids and the success of our graduates; it ensures that our school is continually meeting the needs of its population. We're a school of approximately 800 students and we're growing annually until we get to our maximum of 1300.

Kaye We began with some ideas and beliefs about improving student learning by providing a more relevant, exciting, and challenging education and by making students more responsible for their learn-

ing. We hired staff who could buy into that kind of philosophy, and that led us into developing integrated curriculum at our Grade 9 level and traditional courses at Grade 10 to OAC. We opened the school at 800 students; we're currently at 1100 and our maximum will be close to 2100 in another four years.

Susan If I came to visit you, what would I see that would tell me there's integrated learning happening?

Kaye You would find that our Grade 9 program consists of four blocks of integrated curriculum — math/science/technology, communications (English, geography, and French), skills-for-living (family studies, physical and health education, and business) and integrated arts (keyboard, drama, visual art, instrumental, vocal, etc.). Integration is different in each of the four areas of learning; some are integrated around themes, others are integrated around skills. Everyone has used the *Common Curriculum* to set outcomes.

Barry The concept of integration is something that we all endorse and embrace, including the integration of exceptional children into the regular classroom and the integration of parents into the system. A global perspective drives our curriculum — issues of the environment, peace and conflict, development, and human rights and responsibilities, especially at the Grade 9 level. An example of a project on a global theme is the creation of a global passport. Students need to research and understand the history and geography of the world and how that relates to their own country. Part of the program is the study of literature throughout the world and also the writing and creating of the passport. We continue

this global theme in each year after Grade 9. To be candid, the degree of integration varies between individual teachers, and among all the people in the Transition Years program; some people are simply more comfortable with integration than others. So we've been able to proceed more quickly in some areas than in others, such as math and science where individual teachers have found it more difficult to integrate programs. But they have been allowed to proceed at their own rate of change and are now progressing markedly this year.

Kaye Barry's package is quite different from ours. I don't think there's any one right way to integrate. The philosophy behind it is to make the learning more relevant for young people. As I say, we have assorted offerings. This past year, integrated learning was not particularly successful past Grade 9 because the idea was new to students, so few took those courses. But last year's Grade 9's who have gone on to Grade 10 are selecting the integrated Canadian studies, combined English/history, or the special combined arts package; they're more conditioned to seeing the world in integrated experiences. We are also more successful in some of those areas than others, and certainly math and science always stand out. There are some things in the Grade 9 math curriculum, and in the learning outcomes for Grade 9, that have to be taught by a math teacher in the classroom; these are the basic skills that you need to go on in the world of math. We're trying, too, to be careful not to force connections and integrations. They come along because people are interested, students are interested, the community is interested.

Barry One of the great benefits of integration is the discussion that takes place among teachers regarding not only courses but the kids that they teach.

Kaye We have built-in planning time on Wednesday mornings. Teachers come in and have a two-hour common planning time when students aren't here. Our school day on Monday, Tuesday, Thursday, and Friday is one-half hour longer to make up the time. That's essential to getting the integrated curriculum and the outcomes that you want to have and to ensuring that everybody's on board.

Barry We, too, have some time on

Wednesday mornings, 80 minutes, but we use that for an advisory role. Ideally, it was set aside to give staff time to get together, but we haven't been able to do that as well as we would like. One of my goals is to fit in common planning time for all staff. And one of my greatest fears is that the present government may go after preparation time for teachers at a time when we need it most.

Susan Does the timetable in the Grade 9 program look any different? How have you accommodated these different approaches to integration?

Barry We scheduled English, social science, and history together and called that humanities. We then gave humanities a block of time, from 8:25 to 11:20 daily. We worked originally in three-week units; the kids would switch every three weeks to focus on math and science, which were also offered in a total block of time. This year we've made a change to a more traditionally semestered system because the teachers almost killed themselves last year trying to provide some of the programs. We've still been able to timetable so that the students get their English and their social science back to back, and the teachers' timetable is scheduled so that they can still work in a team effort.

Susan So sometimes it's a team effort and sometimes they're in specific subject areas.

Barry Yes. In the humanities, we have immersion social science, *histoire*, basically, combined with English. So not only do they integrate the subject matter, but they also integrate French and English. It's been working very effectively.

Kaye Our whole school operates on a similar schedule. We have short periods (70 minutes) and long periods (105 minutes). As a student you have two long periods and two short periods in a week of a particular subject — except Wednesdays. Essentially, the curriculum is delivered on Monday, Tuesday, Thursday, and Friday.

In the Grade 9 program, each cluster does it differently. In math/science/technology, we have some groups that are being taught by one teacher, and others that have a math teacher, a science teacher, and a technology teacher in the cluster.

There are advantages and disadvantages to both. For example if you are a teacher in a three-teacher cluster, you teach three times as many children — that's 85 or 90 students instead of 26 or 27.

We had a full-year Grade 9 program last year, where everything was one period a day for the whole year. The math/science/technology people and the communications people found that there was not the continuity they wanted, so this year we're half and half. Integrated arts and skills for living are one period a day all year. In one semester, students have math/science/technology all afternoon, and in the other semester, communications all afternoon. The teachers with that heavy chunk of time are enjoying it.

Susan I think it is important to know more about your Wednesdays.

Kaye Students come in at 10:15, after the teachers have had their common planning time. They then have four one-hour blocks of time which they can use for



“We began with some ideas and

beliefs about improving student learning by providing a more relevant, exciting, and challenging education and by making students more responsible for their learning.”

— Kaye Egan

review or remediation, enrichment or enhancement, or general interest, such as a career speaker, a weight training session, a CPR course, or a trip to the “Phantom of the Opera.” We try to run all of our major school trips on Wednesdays so that students aren't coming out of class on other days.

Barry We have a little different focus on our Wednesdays, as well, with advisory groups — all the kids have advisors. They have an advocate in the school and an individual career plan. We have a lot of our guest speakers during that same time on Wednesday morning.

Susan You're both in new buildings. How have you designed space in your schools to accommodate integrated learning?

Barry On our second floor, we have double-size classrooms, so that we can accommodate up to 70 kids. Often in the Grade 9 humanities program we have two classes together that are team taught. Sixty students may start with two teachers, with one teacher facilitating the lesson in an integrated fashion and the other supporting individual kids, or some of the kids may head out and do something else while the teacher is working with another group.

Technology is another large open area, and this facilitates the broad-based approach to providing technology to all the kids in the school. Kids move from area to area within the whole technology program, using the computer in one part and the application in another, and then specific communications equipment they may need on a project, all within the same time period. Having that kind of free flow and integration of program has been very helpful.

Kaye Barry and I both feel very strongly about the need for interdisciplinary kinds of work areas and doing away with the old department model. As our approach to education becomes more the norm, we'll see changes in how the building goes up. We do have the good fortune of having a large technology area.

Susan It sounds as if broad-based technology is taking place in these large areas, but it's still within periods for technology or math/science/technology. What happens in your other areas?

Barry We have to clarify what we mean by technology. If we're talking about computer use, then of course as new schools, we both have a lot of computers in the school. Kids have the computer as a tool that's readily accessible to them. The technology area is where we have the communications technology. If students are

looking at creating film or doing desktop publishing, they have the freedom to go down and use the equipment in the technology area. Kids in fashion design use the technology to create their fashions, and then they go back to the family studies area. When kids are dealing with the creation of energy in their science classes, they will study the theory in class and then go down to the technology area to use the wind tunnel and perhaps construct a wind-mill that demonstrates an application of their learning.

Kaye We have 450 computer workstations here, so we have computers in every classroom. We also have eight cross-curricular computer labs. Because we're a fully networked school, anything that's available in one room or the resource centre is available to all students.

Barry We are lucky in that we both have technology-rich buildings, but I would not say that the difference in terms of learning for kids is based upon technology; it's based upon the staff's understanding of opening up learning for kids. Certainly technology helps that, because it allows individuals to go as far as they can in specific areas. But the technology is simply a tool.

Susan You set up your school with outcomes in mind. How are you moving towards achieving them?

Barry Everything we do is directed towards the attainment of outcomes, or goals of education that really reflect what our kids are going to need when they graduate. These outcomes allow us to provide a system of education that is much more congruous with where we want kids to be when they graduate. This approach forced us to take a look at how we schedule time for kids and how we needed to create advisor groups to ensure that all kids had a person working with them to see that they were attaining the outcomes. We also had to create a way of assessing whether kids had attained the outcomes. Upon graduation, they do a presentation that demonstrates a synthesis of their learnings — a method that allows parents to get an understanding about what we believe in. The kids begin the process of creating graduate résumés in Grade 9; they start to put in their portfolios what they need to do to demonstrate that they have attained the out-

comes. We combined our school's exit outcomes with outcomes from the *Common Curriculum*. Our Grade 9 report card is totally outcome based and there's no marks given at all.



“Our school actually began

with a school advisory council that refined the mission statement and goals and created outcomes for our graduates. The council's primary role is to assess our effectiveness.”

— Barry Finlay

Kaye The students that we've brought through since Grade 9 won't graduate until a few years from now, but we have in place our completion outcomes, which we adapted from the outcomes of the Common Curriculum. There's an interesting similarity between what you see as something that a Grade 9 student needs, such as being able to apply aesthetic judgment in everyday life, and a graduation outcome that says, develop an aesthetic awareness. So we're saying students should finish with a higher level of development than what they start out with. Teachers are trying to develop and set up curriculum initiatives that respond to this. Assessment tools are becoming more in line with this kind of learning, and so portfolios are very common. Our students and teachers talk about the fact that portfolios give them the chance to see what they've learned and to make connections. In the Grade 9 integrated arts, the students go off to an interview with portfolio in hand to talk about something from the areas of study. So there might be something from drama, something from music, in the portfolio, and the students see the connections and can talk about what

they've meant to them. The teachers value what they learn from interviewing the students. It gives them opportunity to refine the curriculum.

Barry Something we talked about a lot before we opened the school was that we must model the behaviours that we want to see in our kids. So the concept of life-long learning is something that is being modelled, and the kids will see the teachers completing their journals about what they've learned as they're completing theirs.

Kaye It's interesting that boards are becoming more comfortable with the notion that this is a way to do the traditional teacher appraisal. Our teachers are opting for the collaborative appraisal, and so they're doing journals and they're working on projects that are very relevant to the school and to their own learning.

Susan Kaye, what about your reporting?

Kaye Our board had done a lot of research with parents, and there was a clear message that parents still wanted marks, so we have both on our Grade 9 report. We have a scale that reports on the outcomes and how students are doing on these skills, and then on the final report there's a mark that could be a traditional mark. It's a challenge to teachers because they're doing double duty.

Susan How are the students responding to the change to integrated learning and new forms of assessment?

Kaye Our students are growing accustomed to seeing the world in an integrated fashion. They'll tell you about what they've learned in a package rather than what they've learned in an individual subject. For example, a culminating event of the Grade 9 skills-for-living package was a health fair in which the students did presentations and so on. When you see the students in action, you can tell that they're incredibly proud. You can see the lifelong-learning skill, like public speaking, developing over a year's span. My own observation is that the students are enjoying what they're doing.

Barry Of course, because we as staff

are excited about what we're doing, that transfers to the students. The relevancy and the connections are very exciting. Recently our students were working on a unit on animal rights. They began by interviewing veterinarians. Then they actually had a Great Dane come into the school. The students had to measure the dog and find out about its needs, and then design a doghouse on a computer. Then they actually built it. They really see the relationship among all the things that they

Our students are growing accustomed to seeing the world in an integrated fashion. They'll tell you about what they've learned in a package rather than what they've learned in an individual subject.

are doing. I think, ultimately, the most important thing is that they are achieving higher levels of thinking and using more problem-solving approaches. The assessment that we did last year indicates that a lot of kids who are bright are really taking off. We also have to adjust the program for kids for whom this approach is so new that they don't know how to deal with it.

Susan What about parental response to this whole new approach?

Barry When we were creating the school, I had community meetings of up to 200 people questioning what we were doing. When we got rolling, no one came out any more. So, the more you open the school up and involve parents, and their kids are happy and achieving well, the less need they feel to be involved. Part of our assessment last year used effective schools' questionnaires to get specific input from parents. The vast majority of parents are very pleased with what we're doing.

Kaye In the year prior to opening, we visited every school that was going to send us young people; we had a well-

publicized major open meeting for all parents of soon-to-be Sinclair students. We were delighted to have over 200 people, but when you're going to open with 800 students, that's about 1500 significant adults who could have attended. Many of those who didn't come were very concerned when their children came home the first day of school and showed them a timetable that had our unusual Wednesday on it. So we had lots of phone calls and lots of questions. But we did a survey of parents after the first year that showed, for the most part, they were incredibly supportive of what we were doing. The community is now comfortable with the program, and we're starting to get requests from out-of-area students to come here.

Susan What's your comment on the staffing in your school and how it connects to the things you've been able to do?

Kaye It's critical. I had the good fortune of being able to hire based on the goals we have talked about — integrated learning, flexibility of time, a teacher-advisor role for everyone. So teachers came here knowing they would work longer hours, and they do. They do an extra hour of teacher-advisory time and two extra hours of common planning time; it's still time in the school. Only those people who knew what they were getting into came here, and that continues to be the case. We did over 500 interviews for our first 50 teachers, so my sense is that there are a lot of people out there who would like to offer their curriculum in a different kind of setting. There's a lot of opportunity for change.

Barry I had a great deal of freedom in hiring as well. Interestingly, we did have some teachers placed here, and whether they came from a traditional model or not, when they found themselves in a situation where people were excited about what they were doing, they found it to be a wonderful renewal process.

Kaye Whether you're talking about changing the curriculum or working towards outcomes, if you don't have administrators who are risk takers, who are willing to support teachers in risk-taking ventures, and who are willing to talk to community people and parents and bring them on board, change is never

going to happen. It just takes that kind of support from all of your administrative team to make teachers know that it's okay; because they're working more than 100 percent, and they need to be appreciated and they need to be celebrated.

Barry I have come to appreciate that you have to throw out enough of the old to be able to create the new, so people don't slip back into the ways that they've always done things.

Susan Any last advice for those of us

about to embark on the journey given all the obstacles ahead?

Kaye It's crucial to have an understanding of the whole process of change. Michael Fullan tells us to get ready for the implementation dip because it certainly comes just after the school year starts. As an administrator, you can put teams together but you have to be sensitive to the people and to their needs. It's important to let teachers work together in areas that they're interested in. You plant seeds and support people and give them

professional development and let them grow, and it's just fabulous what happens.

Barry Treat people as professionals and not only give them responsibility but also allow them to take ownership of what they're doing. It's time that we changed organizations so that all of us — students, teachers or parents — can take responsibility for learning.

Susan Thank you for sharing your experiences with *Orbit*.

Enhancing the Richness of Mathematics

Creating Links with Other Disciplines

CHRISTINE SUURTAMM

Mathematics Teacher, Meadowvale Secondary School, Peel Board of Education

They say that we're the last to go! Mathematics teachers have the hardest time accepting and working with in an integrated curriculum. Or so I have heard. And yet parents urge their children to continue in mathematics with comments such as: "You'll need it — you'll see. You can't do anything without math." If parents see that math connects with the real world then shouldn't teachers be making those connections in the math classroom?

I see math everywhere. A trip to the Canadian National Exhibition in August with my family can prompt a problem-solving activity for my class on the first day of school. The sign at the Midway game read " $2 \text{ Small Prizes} = 1 \text{ Medium}$, $2 \text{ Medium} = 1 \text{ Large}$, $2 \text{ Large} = 1 \text{ Jumbo}$ " and the question became "How much will a Jumbo prize cost you if it costs \$2.00 to play each game and you win a prize every time?" With just this simple challenge, the concept of exponential growth is introduced to a class.

Math connections are everywhere. Connections to the marketplace are self-evident. Trips to the grocery store, GST, PST, unit pricing, and interest rates are all

examples of why students need to know about rate, ratio, proportion, percent, and basic arithmetic calculations. But there is much more beyond this that math teachers and thus their students can connect to.

The Ontario Ministry of Education's *Common Curriculum* encourages a blending of mathematics, science, and technology curriculum. This link appears to be

Mathematics teachers need to show students that mathematics is also intrinsic in the arts and social sciences.

fundamental as both science and technology depend on mathematics skills. Many schools are currently in the early stages of implementing an integration of the three subjects in a variety of forms. Many schools have created a project-based curriculum where students work in teams to build bridges, design better packages for products, or create an ecological environment. Ideally through these projects, students develop and extend their skills in all three subject areas. Teachers are striv-

ing to create a curriculum which maintains the integrity of their subject area while enriching the subject through its extension into other disciplines. Teachers' collaborative efforts coupled with administrative support encourage the success of such programs.

It is extremely important, however, to make connections between mathematics and disciplines other than just science and technology. Many students do not see themselves as what they would call a "math/science" type and in fact are afraid of or intimidated by math. The integration of mathematics, science, and technology could appear to create a larger barrier to understanding mathematics for these students, because math is now teamed with other subjects that they may fear as well. The hurdle may appear insurmountable to them. Mathematics teachers need to show students that mathematics is also intrinsic in the arts and social sciences. Connections to those disciplines are just as easy to make as they are with science and technology and are just as important to make so that we do not alienate talented students.

Art is rich with mathematics connections. A study of the relationship between the Pythagorean Golden Mean and aesthetics develops the concept that there is a special ratio or proportion that occurs more often in art than can be accounted for by coincidence. This ratio is created from a Pythagorean right triangle and appears in the work of Leonardo Da Vinci, Michaelangelo, Greek sculpture and architecture, as well as more modern artists such as Mondrian. As well, the development of spatial sense and perspective in art is very analogous to mathematics work in three-dimensional geometry. Numerous other connections could easily be made to art.

Music and mathematics easily go

together. At an elementary level, one could examine the ratios between notes. Guitar frets form a natural logarithmic scale as does the analog scale on a radio. A musical keyboard hooked up to an oscilloscope displays curves that students easily recognize as sine curves, with fluctuations in the curves representing harmonics, created by the addition of other sine curves. In fact, each musical instrument could be represented by a trigonometric equation. Many students who are strong mathematicians are also talented musicians. The natural

rhythm and harmony of the universe are reflected in both disciplines.

Social science has many links to mathematics. Geography is constantly using scale drawings and spatial sense. Population growth, carbon dating of remnants found in archaeological digs, and the effects of radioactivity on communities all relate to exponential functions. Students constantly use data collection, charting, and graphing techniques to organize information discovered in social science research.

A good mathematics classroom continually makes connections to the students' world. An integrated curriculum is an extension of that connected classroom, creating a dialogue between disciplines. This dialogue enhances the richness of mathematics and allows students to make connections between mathematics and something that is important or familiar to them. Students will then begin to believe their parents when they say: "You'll need it — you'll see. You can't do anything without math."

Integrating Arts in the Secondary School

Teaching Beyond Subject Content

LEE WILLINGHAM

Curriculum Coordinator, Music
Scarborough Board of Education

Since "The Arts" have been designated as one of the four mandatory program areas for study in Ontario's *Common Curriculum*, many secondary schools across the province have taken steps to design and offer courses which enable students to successfully meet the 29 arts outcomes. One of the initial solutions to a mandated arts curriculum was to integrate the arts into a course called Arts in Life or The Arts Experience or something similarly generic.

The results of this type of course, while providing a marvellous forum for collaboration among teachers of the arts, were lamentable. When teachers attempted to integrate the arts, they found that there was very little in common in the development of creating skills and producing works of art among the disciplines of dance, drama, music, and visual arts. The working medium for each of the arts is unique (e.g., visual arts and music share nothing in common at the production level). In fact, it became more and more evident that the arts could not be offered to students effectively as a discipline, but, like the other

three quadrants, the arts find their place in the *Common Curriculum* as a large multidisciplinary program area.

The majority of arts teachers at the secondary school level are specialists. Many of these teachers have been trained as dancers, artists, and musicians and have entered the teaching arena through a professional faculty. They cherish the unique

The science of sound
and acoustics, architecture
as frozen music, music
and media ... are just a
few areas of
related study.

dimensions of their respective art discipline and bring very specialized, personal skills to the classroom. The classroom is where the music or drama teacher is able to engage students in acquiring the appropriate knowledge and skills in order to learn to express themselves personally through the art form. When the knowl-

edge/skill-based approach is eroded, the opportunity for the student to meet the arts outcomes in an authentic context is also greatly diluted, and the result is a superficial and limited "exposure" to the arts.

So, what of integration in the arts? It is my position that discipline-based arts in the secondary school are powerful and compelling forums for true integration. Interdisciplinary and transdisciplinary models serve as tools for designing rich project-based units in the arts classes. For example, the Scarborough Board of Education has developed seven strands designed to enable music students to meet *Common Curriculum* outcomes. A discipline-based music class will provide music students with knowledge and skills in creating, listening, performing, literacy, history, and culture, in addition to music and other disciplines and music and the community. Topics such as the science of sound and acoustics, the French Revolution (or any historical event), life in a monastery, mathematics and numerology in music, architecture as frozen music, music and media, and telling the story of your community through making an opera are just a few areas of related study which give music students authentic project material that helps them to see the world through an integrated lens.

Can we have it both ways? Is it possible to design a discipline-based course which embraces an integrated curriculum? Yes indeed. The very practices that are cherished by secondary school arts specialists are embedded with a rich and varied array of integrative ingredients. The challenge is, as I see it, to teach beyond our subject content and project the skills, knowledge, and values within our discipline into a context which addresses the whole person in a complex and inter-connected world.

Linking Technology and Learning Outcomes

Integrated Curriculum Models from TVO

RON WIDEMAN

Curriculum Project Manager, TVOntario

There is compelling evidence that the more we employ a wide range of technologies in education the more likely it is that we can serve students of a wide variety of learning styles, intelligences, and backgrounds. At TVO we recently completed a review of the literature on the relationship between learning-style and multiple-intelligence theories and the use of media in education (Soudak, in press). The review found that the educational promise of multiple media — responsiveness to learners; engagement of multiple senses, symbol systems, and intelligences; and encouragement of active exploratory learning — corresponds to the main messages from multiple-intelligence and learning-style theories.

In his January 1996 speech to the Ontario Public School Boards' Association, the Minister of Education and Training confirmed his commitment to update the level of technology in all schools and school boards across the province. However, merely having a technology in the classroom is not enough to improve student learning. Unless a technology is embedded in the curriculum and connected with other technologies to form comprehensive learning packages, it will remain peripheral and its potential will not be realized.

Over the past 25 years, TVOntario has earned an international reputation for its outstanding educational television products. Currently, we are developing prototypes for a new generation of TVO curriculum. We reviewed existing TVO curriculum programs, studied the principles of education and learning outcomes in *The Common Curriculum: Policies and Outcomes, Grades 1-9*, and examined the literature on technologies in education to develop programs that harness the potential of a variety of technologies, including video, computers, and electron-

ic networks, to facilitate outcomes-based and integrated learning for all students.

One of these prototype programs is *Our Fragile World*. This integrated learning system — which we plan to have ready for widespread use by September 1996 — enables students in Grade 7 to 9 to investigate environmental issues and communicate their findings through multimedia.

Our Fragile World addresses communication, research, technological, environmental, and citizenship outcomes in all four Common Curriculum program



areas. The kit includes four 15-minute video programs, a resource list of print, video, and Internet sources, CD-ROM and floppy data discs, and a teachers' guide. *Our Fragile World* may be used by individual students, small groups, or an entire class. It involves three kinds of activities — viewing, investigating, and communicating.

Viewing

Students study the videos and make jot notes to record their thoughts and feelings. They compare the four programs and brainstorm questions and issues. The programs stimulate thinking about the following concepts: elements of environments are interrelated; human activity

affects environments in many ways; when humans affect one element in an environment, other elements are also affected; and people can make choices that threaten or sustain environments

Investigating

Students select issues to investigate and identify reasons why their issues are important. Individuals or small groups investigate their issues beginning with the video programs, the data discs, and the print, video, and Internet sources in the resource list. They extend their inquiries to include related local issues.

Communicating

When they have completed their investigations, students review the quick-time movies, stills, music, and sound effects on the data discs. They begin to select clips for their presentations. If they have access to a digital camera or scanner, they can include pictures relating to their local studies.

Students plan their presentations by creating storyboards. They finalize the choice of clips, create a title page, write test segments, select placement of clips on pages, write bullets, voice-over, and credits, and select background, text colours, and music. When the storyboards are completed, students produce their presentations using appropriate presentation software. Sharing the presentations can stimulate further discussion and inquiry into environmental and media literacy issues.

Currently the development of *Our Fragile World* is continuing in a number of Ontario classrooms. The recommendations of these teachers and students will inform our revision process prior to production. Two Peel Board of Education schools, one elementary and one secondary, are working with us to develop the outcomes-based instruction and assessment components of *Our Fragile World*. The assessment package will include, among other things, disc-based exemplars of student presentations and criteria for assessing student viewing, investigation, and presentation skills.

REFERENCE

Soudak, A. (in press). *Multiple intelligences and learning styles: Linking multimedia and the Common Curriculum*. Toronto: TVOntario Research.

ORBIT

ONTARIO'S MAGAZINE FOR SCHOOLS

Published by the Ontario Institute for Studies in Education

***Your annual subscription for 1996
includes these four issues on
current topics for Ontario educators***

Creating Integrated Curriculum: Voices in the New Story of Education

Guest Editor Susan M. Drake, Professor,
Faculty of Education, Brock University

Global Education: Environmental and Citizenship Issues for Ontario Students

Guest Editor Carole Ann Reed, Writer and
Equity Co-ordinator, Ontario Institute for Studies
in Education

Integrating Old and New Technologies in Education: Enabling All Students to Achieve

Guest Editors Robert D. Cook, Head,
Technology for Enhanced Learning Centre,
Faculty of Education, University of Toronto,
Wayne Seller, Head, OISE Field Centre at
Thunder Bay, and Ron Wideman, Curriculum
Project Manager, TVOntario

School Councils: Rationale and Prospects for Implementation

Guest Editors Rouleen Wignall, Executive Head,
Field Services and Research, OISE, and Joanne
Zywine, Implementation Advisor School Councils,
Ministry of Education and Training

Still only \$38.52 (includes 7% GST)

Order your subscription now!

(416) 447-8186

Fax (416) 447-2713

IN THIS ISSUE

**Creating
Integrated
Curriculum**



**Guides
for
Planning**



**Integrated
Learning for
Young Children**



**Units for the
Transition Years**



**Voices in the
New Story**

